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PROCEEDINGS

OF THE

ZOOLOGICAL SOCIETY

OF LONDON.

PART I.

1833.

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LIST
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With References to the several Articles contributed by each.

BELCHER, Capt. R.N. *page*
- Note on the Length of the Peduncle of the *Pentalasmis striata*, Leach.......... 120

BELL, T. Esq.
- Characters of two New Genera of *Reptiles*.......... 98
- Observations on the Neck of the *three-toed Sloth* (*Bradypus tridactylus*, Linn.).......... 99

BENNETT, E. T. Esq.
- Characters of a New Species of *Antelope* (*Antilope Mhorr*) presented by E. W. A. Drummond Hay, Esq.......... 1
- Characters of a New Species of *Aphrophora* (*Aphr. Goudoti*) from Madagascar, presented by C. Telfair, Esq.......... 12
- On a Specimen of an *Antelope*, probably the young of *Antilope Cervicapra*, Pall., presented by C. Telfair, Esq.......... 12
- Characters of New Species of *Fishes* from the Mauritius, presented by C. Telfair, Esq.......... 32
- Characters of New Species of *Mammalia* from California.. 39
- Notice of a New Genus of *Viverridous Mammalia* from Madagascar, presented by C. Telfair, Esq.......... 46
- On the Family of *Chinchillidæ*, and on a New Genus referrible to it.......... 57
- Characters of two New Species of *Monkeys* in the Society's Collection.......... 67
- Characters of a New Species of *Cat* (*Felis*, Linn.) from the Continent of India, presented by J. M. Heath, Esq..... 68
- Characters of a New Species of *Lemur* (*Lemur rufifrons*) 106
- Characters of a Species of *Monkey* (the *Malbrouck* of Buffon), hitherto confounded with the *Simia Faunus*, Auct..... 109
- On several Animals recently added to the Society's Menagerie.......... 118

BENNETT, F. D. Esq.
- On the *Larynx* of the *Albatross* (*Diomedea exulans*, Linn.) 78
- On the Light emitted by a Species of *Pyrosoma*.......... 79

Bennett, G. Esq. *page*
On the Generation of the *Kangaroo* and *Ornithorhynchus*, &c. 82

Boase, Dr. H.
On two Species of *Fishes* taken in Mount's Bay, Cornwall 114

Bourchier, R. J. Esq.
Letter from, relating to the *Vultur Kolbii*, and to his endeavours to procure for the Society living *Bustards* from Northern Africa 81

Broderip, W. J. Esq.
Characters of New Species of *Mollusca* and *Conchifera*, collected by Mr. Cuming 4, 52, 82
Descriptions of some New Species of Cuvier's Family of *Brachiopoda* 124

Coldstream, Dr.
On the *Ova* of *Sepia officinalis*, Linn. 86

Cox, J. C. Esq.
On the Circumstances which modify the Existence of Animals in Northern Regions 87
Notice of a living *Mocking-bird* (*Turdus polyglottus*, Linn.) in his possession 114

Cuming, H. Esq.
Characters of New Species of *Mollusca* and *Conchifera*, collected by 4, 16, 34, 52, 70, 82, 124, 134

Desjardins, M. J.
Abstract of the Third Report of the Proceedings of the "Société d'Histoire Naturelle de l'Isle Maurice" 117

Geoffroy-Saint-Hilaire, M.
Reflections on Dr. Weatherhead's Communication respecting the *Ornithorhynchus* 15
On the Abdominal Glands of the *Ornithorhynchus* 28
New Observations on the Nature of the Abdominal Glands of the *Ornithorhynchus* 91

Goudot, M.
Letter from, to C. Telfair, Esq., on a remarkable Phænomenon observed in Madagascar 11

Gould, Mr. J.
On Specimens of the *Phasianus lineatus*, Lath., presented by G. Swinton, Esq. 13
Characters of a New Species of *Toucan* (*Pteroglossus ulocomus* 38
Characters of a New Genus of *Insessorial Birds* 57
On a Specimen of a *Hornbill* (*Buceros cavatus*, Lath.) living at the Society's Gardens 61

GOULD, Mr. J. (*continued.*) *page*

Characters of three New Species of *Toucan* (*Rhamphastos* and *Pteroglossus*) 69

Characters of a New Species of *Dove* (*Columba Princeps*, Vig.) 78

Characters of a New Species of *Malurus*, Vieill. 106

Description of the Female of *Trogon pavoninus*, Spix 107

Characters of a New Species of *Toucan* (*Pteroglossus castanotis*) 119

Characters of a New Species of *Woodpecker* (*Picus flavinucha*) 120

Characters of a New Species of *Eurylaimus* (*Eur. lunatus*) 133

GRANT, Dr. R. E.

On the Nervous System of *Beroë Pileus*, Lam., and on the Structure of its *Cilia* 8

On *Ianthina vulgaris*, Lam., and *Velella limbosa*, Lam. .. 14

On a New Species of *Sepiola* (*Sep. stenodactyla*) from the Mauritius, presented by C. Telfair, Esq. 42

On the Structure of the Heart and Distribution of the Blood-vessels of the *large Indian Tortoise* (*Testudo Indica*, Linn.) .. 43

On the *Cranium* of the *round-headed Grampus* (*Delphinus globiceps*, Cuv.) 65

On the *Cloaca* of the Female *Condor* (*Sacorhamphus Gryphus*, Dum.) 78

On the Anatomy of *Loligopsis guttata*, Grant, and *Sepiola vulgaris*, Leach. 90

GRAY, J. E. Esq.

On the Reproduction of *Cirripeda* 115

On the Torpidity of some Marine *Gasteropodous Mollusca* 116

On the Emission of a Glutinous Thread by the Animal of *Rissoa parva* 116

Characters of a New Genus of *Bats* (*Brachyphylla*), obtained by the Society from the collection of the late Rev. Lansdown Guilding 122

Characters of a Species of *Bulinus* in the collection of Mr. Adamson 123

HALLAM, Col.

Letter on a singular Race of *Pigs* 16

HARLAN, Dr.

On the Structure of the Heart, &c. in the *Pike-headed Alligator* (*Alligator Mississippensis*) 82

HAY, E. W. A. DRUMMOND, Esq.

Characters of a New Species of *Antelope* presented by ... 1

Letter on several Subjects in Zoology 97

HEATH, J. M. Esq.

Characters of a New Species of *Cat*, forming part of a collection of *Mammalia*, *Birds* and *Reptiles*, presented by 68

HODGSON, B. H. Esq. *page*
  Letter on various subjects in Zoology 105
  Characters of a New Species of *Perdix* 107
  Further Illustrations of the *Antilope Hodgsonii*, Abel 110
  Description and Characters of the *wild Dog* of Nepâl 111

HOPE, Rev. F. W.
  Characters of several New Genera and Species of *Coleopterous Insects* 61

HUNT, JAMES.
  Notes on the Changes of Plumage in several Species of *Birds* in the Society's Gardens 9
  Note on the Breeding of the *Passenger Pigeon* (*Ectopistes migratorius*, Swains.), in the Society's Menagerie 10

LEES, J. C. Esq.
  On the Habits and Economy of a Species of *Glaucus*, Forst. 51

LOWE, Rev. R. T.
  Remarks on the Nature of the Respiratory Organs in certain Littoral *Mollusca* of Madera 101
  Letter accompanying a Series of the Land and Freshwater *Shells* of Madera, presented by 102
  Letter on several Subjects in Zoology 102
  Characters of a New Genus of *Fishes* 104
  Characters of a New Genus, and of several New Species of *Fishes* from Madera 142

MARTIN, Mr. W.
  Notes of the Dissection of a *slender Loris* (*Loris gracilis*, Geoffr.) 22
  Notes of the Dissection of a *Squirrel Monkey* (*Callithrix sciureus*, Geoffr.) 88
  Notes of the Dissection of a *Pekan*, or *Fisher Marten* (*Mustela Canadensis*, Schreb.) 97
  Notes of the Dissection of a *Puma* (*Felis concolor*, Linn.) 120
  Notes of the Dissection of a *Grison* (*Galictis vittata*, Bell) 140

OGILBY, W. Esq.
  Characters of a New Species of *Antelope* (*Antilope ellipsiprymna*), from the collection of Mr. Steedman............ 47
  Characters of a New Genus of *Carnivorous Mammalia*, from the collection of Mr. Steedman....................... 48

OWEN, R. Esq.
  On the Mammary Glands of the *Ornithorhynchus* 30, 95
  On the Stomachs of two Species of *Semnopithecus*, F. Cuv. 74
  On the Anatomy of the *concave Hornbill* (*Buceros cavatus*, Lath.) 102
  On the Anatomy of the *Cheetah* (*Felis jubata*, Schreb.) .. 108
  On the Anatomy of the *Brachiopoda* of Cuvier, and more especially of the Genera *Terebratula* and *Orbicula* 125

Owen, R. Esq. (*continued*). *page*
On the Period of Uterine Gestation, and the Condition of the New-born Fœtus in the *Kangaroo* (*Macropus major*, Shaw.) 128

Porter, Sir R. **Ker**.
Letter on several Zoological Subjects 114

Prinsep, J. Esq.
Letter accompanying a List of Zoological Specimens forwarded by B. H. Hodgson, Esq. 102

Sabine, J. Esq.
Address on opening the Business of the First Meeting ... 1

Savi, Prof. **Gaetano**.
Letter accompanying a Series of his Works, and a Collection of most of the New Animals described in them 113

Smee, Capt. W.
On the *maneless Lion* of Guzerat 140

Smith, **Andrew**, M.D.
Letter on several Subjects in Zoology 45

Spooner, Mr.
Notes of the *post mortem* Examination of a *M'horr Antelope* (*Antilope Mhorr*, Benn.) 2
Remarks on the *post mortem* Appearance of a *Moose Deer* (*Cervus Alces*, Linn.)................................ 46

Sowerby, G. B. Esq.
Characters of New Species of *Mollusca* and *Conchifera*, collected by Mr. Cuming 16, 34, 54, 70, 82, 134

Stark, Dr.
On the Occurrence of the *edible Frog* (*Rana esculenta*, Linn.) in the neighbourhood of Edinburgh 88
On the Changes of Colour in various *Fishes*, in consequence of their being kept in Water contained in Vessels of different Colours 88

Sykes, Lieut.-Col. W. H.
On the *Fœtus* of a *Panther*, exhibiting all the Markings of the Adult Animal 49
On a Remarkable Instance of affectionate Attachment in the *common Hyæna* (*Hyæna vulgaris*, Cuv.) 76
On the Power of leaping to a considerable Height, possessed by the *Loligo sagittata*, Lam.................... 90

Telfair, C. Esq.
Letter from M. Goudot on a remarkable Phænomenon observed in Madagascar, communicated by 11
Letter on the Bones of the *Dodo* (*Didus ineptus*, Linn.), and other Zoological Subjects 31

Telfair, C. Esq. (*continued*). *page*

Letter accompanying a present of a New Quadruped from Madagascar 46

Letter accompanying a present of a Fossil Inferior Pharyngeal Bone of a gigantic Species of *Scarus* 52

Letter on the History of a living Specimen of the *Indian Tortoise* (*Testudo Indica*, Linn.), presented by General Sir Charles Colville 81

Letter on the *Sokinah*, an undescribed Species of *Tenrec*? (*Centenes*, Illig.) 81

Thompson, W. Esq.

On the Occurrence of the Young of the *Arctic Tern* (*Sterna Arctica*, Temm.) in the North of Ireland 33

On the Occurrence of the *black-headed Gull* (*Larus capistratus*, Temm.) in the North of Ireland 33

Vigors, N. A. Esq.

On a New Species of *Barnacle Goose* (*Bernicla Sandvicensis*,) from the Sandwich Islands, presented by Lady Glengall 65

On a Collection of Skins of *Birds* from California 65

Williamson, W. Esq.

Account of a Specimen of the *Garrulous Roller* (*Coracias garrula*, Linn.) shot near Scarborough 88

Willshire, W. Esq.

On the *Dub* of the Arabs (*Uromastix acanthinurus*, Bell) 16

On the *M'horr Antelope* (*Antilope Mhorr*, Benn.) 77

On the Method of Dressing Skins practised in Marocco 77

Wooler, W. A. Esq.

Account of a *Wild Dog* from the Mahablishwar Hills 113

Yarrell, W. Esq.

On the *Trachea* of the *Penelope Guan*, Temm., and the *Anas Magellanica*, Auct. 3

On the Laws that regulate the Changes of Plumage in *Birds* 9, 56

Description, with additional Particulars, of the *Apteryx australis*, Shaw 24, 80

On the *woolly* and *hairy Penguins* (*Aptenodytes*, Forst.) of Dr. Latham 33

On the Identity of the *woolly Penguin* of Dr. Latham with the *Aptenodytes Patachonica*, Gmel. 65

Characters of the *Irish Hare*, a New Species of the Genus *Lepus*, Linn. 88

On the Deficiency of Teeth in the *hairless Egyptian* Variety of the *Dog* 113

PROCEEDINGS

OF THE

ZOOLOGICAL SOCIETY OF LONDON.

January 8, 1833.

Joseph Sabine, Esq., Vice-President, in the Chair.

The Chairman opened the business of the Meeting by referring to the By-laws under which it was held, and stated the anticipation of the Council that the General Meetings for the transaction of Scientific Business, of which the present was the first, would be productive of great advantage to science. He adverted to the known abilities and industry of many of the Members of the Society, who have contributed to the Proceedings of the Committee of Science and Correspondence, (the meetings of which have now ceased,) and dwelt on the certainty of much important information being communicated by their continued labours. There were also other Members equally in possession of facts of interest, and equally capable of imparting the knowledge of them, to whom the Society might look with confidence for contributions. He trusted that these experienced zoologists would be continually excited to fresh discoveries, by the acquisition of additional subjects of investigation in the Society's Menagerie and Museum, and that others would be stimulated by their example to pursue similar inquiries with equal zeal, and with all the increased facilities for successful study afforded by more extensive collections. The result of such researches would, he hoped, be freely brought before the Society at the Meetings which had now commenced, and which would thereby be rendered at once interesting to the Members, and important to the advancement of knowledge.

The Secretary then read the By-laws referred to in the Chairman's address.

The Vice-Secretary called the attention of the Meeting to a stuffed specimen of the *M'horr Antelope*, which was exhibited on the table. He remarked that it belonged to that form of the genus to which the name of *Antilope Dama* has been given, on account of the horns being curved forwards; a character mentioned by Pliny as belonging to the animal which he designated *Dama*, and which was also of transmarine origin. By references, however, to other classical authors, Mr. Bennett was induced to infer that the same name was used by them to designate another animal which was subservient to the chase in Europe, and not improbably the *Fallow Deer*.

The earliest distinct mention in modern times of an *Antelope* of the form of *Dama* was by Buffon, who described under the name of *Nanguer*, an animal brought by Adanson from Senegal: on this description is founded the *Ant. Dama* of Pallas. Under the same name M. Lichtenstein and M. Ruppel have severally described an *Antelope* with procurved horns, the *Addra* or *Leddra* of Nubia and Upper Egypt. These differ, however, in colouring from each other, and also from the *M'horr* of Tafileht; and Mr. Bennett was therefore disposed to regard them as distinct races of the same form of *Antelope*, (a form for which the name of *Damæ* may be retained,) and to consider them provisionally as the representatives of three species, equivalent probably in value to the *Corinne* and *Kevel* recently distinguished by M. F. Cuvier from the *Gazelle*, *Ant. Dorcas*, Pall. He characterized them respectively under their local names as follows:—

Genus ANTILOPE, Pall.

Sectio, DAMÆ. Cornua reflexa, annulata; versus apicem insigniter procurva, lævia. Collum elongatum, maculâ mediâ anticâ transversâ albâ.

ANTILOPE MHORR. *Ant. obscurè badius; facie albidâ vittis tribus griseis, vel nigrescentibus; prymnâ lineâque latâ utrinque inde antrorsum ductâ, caudâ, ventre, artubusque internè anticè posticèque albis; coloribus abruptis.*

ANTILOPE NANGUER. *Ant. suprà fulva; infrà, prymnâ, clunibusque totis albis.*

ANTILOPE ADDRA. *Ant. collo dorsoque medio dilutè fulvis; infrà, prymnâ, dorso posteriore, lateribusque albis.*

The individual of the *M'horr Antelope* exhibited was one of the two recently presented, while living, to the Society by E. W. A. Drummond Hay, Esq., Corr. Memb. Z.S., His Majesty's Consul General at Tangier, for whom it had been procured by the exertions of W. Willshire, Esq., Corr. Memb. Z.S., Vice-Consul at Mogadore. The characters of the animal were further illustrated by reference to an imperfect skin, also presented to the Society by Mr. Drummond Hay.

Mr. Bennett's detailed description of the *M'horr Antelope* will be published, with a figure, in the Society's Transactions.

At the request of the Chairman Mr. Spooner read the following Notes of the *post mortem* examination of the *M'horr Antelope*:—

"The external conformation of the animal exhibited great emaciation. On laying open the abdominal cavity it was remarked that the peritoneal secretion was more abundant than is usual in health, and the membrane exhibited marks of chronic inflammation throughout its extent, but more particularly in the portion reflected over the small intestines. Several hydatids were adherent to the mesentery and *omentum*. The latter *viscus* was extremely thin and transparent, and did not possess the slightest portion of *adeps*, which is somewhat singular in the *Ruminantia*, among which an accumulation of *adeps* is generally observed in this *viscus*, even where great emaciation has been present in other parts. The anatomical structure of the abdominal *viscera*, for the most part, agreed with the same in the tribe of *Antelopes* in general.

“ The kidneys were healthy, and were rather larger than is usual, while the bladder was very small. The renal capsules were of an oblong figure, and situated about half an inch anterior to the kidneys.

“ The tendinous portion of the diaphragm was very extensive, and most beautifully developed, having nearly the appearance in colour of the *tapetum lucidum* of the eye. The substance of the lungs was hepatized, and there were in many parts adhesions to the inward surface of the ribs. The right lung consisted of four lobes, the left of three. The right side of the heart was peculiarly flaccid, and the blood found in both sides was very dark in colour, and had not undergone coagulation. The *vena azygos* passed upon the left side of the spine, and terminated in the anterior *cava*: I have observed a similar disposition in the *Sheep* and *Chamois*, but in the latter animal the termination was in the posterior *cava*.”

A stuffed specimen was exhibited of a female of the *harnessed Antelope*, *Antilope scripta*, Pall., which had lived for some months in the collection of the Zoological Society of Dublin, by whom it was presented ~~to the~~ Society.

Preparations were exhibited of the *tracheæ* of the *Penelope Guan* of M. Temminck, and of the *Anas Magellanica*, Auct., and Mr. Yarrell read the following short descriptions of them.

“ The *trachea* of the *Guan* is uniform in size and substance throughout its whole length. After descending by the neck in the usual way, it is extended and passes downwards under the skin, but over the outer surface of the pectoral muscle on the right side, to the extent of 2 inches beyond the angle formed by the junction of the two portions of the *os furcatorium*. The tube of the *trachea* is then reflected, and ascending to the cavity of the *thorax*, again turns to be carried to the lungs as in other *Birds*, and is provided with one pair of true muscles of voice, which have the usual origin and insertion. The loop or fold of the tube formed on the surface of the pectoral muscle is imbedded in cellular tissue, and further retained in its place by a strong ligament, which firmly adhering to the loop, passes backwards to be first attached to the posterior angle of the *sternum*, and afterwards dividing once, and passing still further backwards, the two slips are inserted on the two elongated pubic points of the *pelvis*.

“ This structure in the *Guan* has been noticed and figured by M. Temminck, in his ‘ Histoire des Pigeons et Gallinacés,’ but this is the first opportunity that has occurred of exhibiting a preparation from the bird on the table of the Society.

“ The *trachea* of the male *Magellanic Goose* is furnished with a large hollow bony protuberance on the left side, near the bottom of the tube, at the point of divarication, similar in character to those observed in the *wading Ducks*, but differing in its form. The dorsal surface is flat, the external surface convex, the lateral circumference rounded.

"The male of the *Egyptian Goose* possesses also a bony enlargement at the same part; but as much difference exists between the appendages in these two *Geese*, as is known to prevail in the form of the enlargements of the *tracheæ* in the various species of *Ducks*.

"The protuberance in the *Egyptian Goose* is much broader than it is high, its greatest measurement being in the line of its transverse diameter; that of the *Magellanic Goose* is, on the contrary, higher than it is broad, and its line of greatest measurement is from before backwards.

"As in all those *Ducks* possessing tracheal enlargements of bone only, the stomach of the *Magellanic Goose* is a true muscular gizzard, with a small internal cavity having a dense and strong cuticular lining; the intestines are long and furnished with two cæcal appendages, each 9 inches in length. This bird has also one pair of true muscles of voice. It and the *Egyptian Goose* are the only species of *Anser*, as far as I am aware, in which any bony enlargements have been noticed. They bear considerable general resemblance to each other in the colour of their plumage, and both exhibit a brilliant *speculum* on the wing, like those observed in the *Ducks*."

Specimens were exhibited of numerous *Mollusca* and *Conchifera*, hitherto undescribed, which form part of the collection made by Mr. H. Cuming, during a voyage undertaken by him in 1827, 1828, 1829, and 1830, for the purpose of obtaining subjects in Natural History on the western coast of South America, its adjacent islands, and many of those which form the Archipelago of the South Pacific Ocean. Nearly three hundred new species of these classes have been already brought under the notice of the Committee of Science and Correspondence, at various meetings during the past year, and characters of them from the pens of Mr. Broderip and Mr. G. B. Sowerby, have been published in the Proceedings of that Committee. The remaining species Mr. Cuming proposes to lay before the Society from time to time, as the descriptions of them are completed. The intention of publishing coloured figures of them was again announced.

The new species exhibited at the present Meeting were accompanied by characters by Mr. Broderip. They are as follow:—

Genus Spondylus.

Spondylus Princeps. *Spond. testâ rotundatâ, 6-costatâ, rubrâ, spinosâ, spinis lingulatis, latis; costis interstitialibus 5 spinosis, spinis brevioribus; intùs albâ, limbo lato profundè plicato, rubro: long. 5½, alt. 5, lat. 3 poll. (spinis haud inclusis).*

Hab. ad Insulam Platam Columbiæ Occidentalis.

Found attached to coral rocks at the depth of seventeen fathoms. In old specimens the interior is of a brownish hue, especially at the hinge.—W. J. B.

Spondylus dubius. *Spond. testâ subrotundatâ, croceâ, 6-costatâ,*

costis interstitialibus numerosis, spinis frequentibus, brevibus, subarcuatis; intùs albá, limbo lato plicato croceo, plicis numerosis: long. 4⅞, *alt.* 4⅜, *lat.* 2⅛ *poll.* (*spinis inclusis*).

Hab. in Americâ Centrali. (Gulf of Tehuantepec).

Obs. Varietas forsan *Spond. Principis.*

Dredged up from ten fathoms attached to shells.—W. J. B.

Spondylus Leucacantha. *Spond. testá rotundatá,* 6-*costatá, spinosá, subcroceá, spinis sublingulatis, subreflexis, longioribus, albis; interstitiis striatis; costis interstitialibus* 3 (*mediá maximâ*) *spinosis, spinis brevioribus; intùs albá, limbo angusto pallidè subcroceo: long.* 2⅛, *alt.* 2⅜, *lat.* 1⅛ *poll.* (*spinis haud inclusis*).

Hab. ad Insulam Platam.

Obs. Spinis infrà subcanaliculatis.—W. J. B.

Spondylus aculeatus. *Spond. testá rotundatá, planiusculá, albá, spinis açuleatis, subrecurvis, frequentibus, gracilibus horridá; long.* 1, *alt.* 1, *lat.* ⅜ *poll.* (*spinis haud inclusis*).

Hab. in Oceano Pacifico. (Lord Hood's Island.)

Found attached to a piece of coral on the reefs.—W. J. B.

Genus Triton.

Triton lignarius. *Trit. testâ globoso-pyriformi longitudinaliter subplicatá, transversim granuloso-striatâ, flavâ striis saturatioribus; columellá excavatá, aperturæ limbo luteo-sanguineo, dentibus albis; labro lato, crasso; caudá mediocri subrecurvá; epidermide fuscá, reticulatá, ad labrum villosá: long.* 1⅛, *lat.* ⅞ *poll.*

Hab. ad Portum Protrero et Panamam.

The elevated *striæ*, especially the two middle ones of the body whorl, are of a much darker colour than the ground of the shell, which is reddish yellow, here and there mottled with whitish on the longitudinal plaits, and on the ledge of the lip. The teeth of the outer lip are very large, and there is one very large one at the upper angle of the inner lip. The reticulated *epidermis* is villous at the outer lip, and the villous edges mark the stages of growth in young specimens. Found in sandy mud at a depth of from seven to twelve fathoms.—W. J. B.

Triton constrictus. *Trit. testá fusiformi, valdè distortá, transversim noduloso-striatá, subcancellatá, subfulvá; spirá elongatá, attenuátá; canali brevissimá, subrecurvá; aperturá coarctatá, limbo castaneo, granuloso, granulis albidis: long.* 2⅛, *lat.* 1⅜ *poll.*

Hab. ad Montem Christi et Xipixapi.

Another species of those shells called *grimaces.* It differs materially both from *Trit. Anus* and *Trit. clathratus*, is a heavier shell than the latter, and has a much longer spire and shorter canal than either of those species, while it wants the laminated border that so remarkably surrounds the aperture of *Trit. Anus*, and is even more distorted.

Mr. Cuming dredged it up from sandy mud from seven to ten fathoms below the surface.—W. J. B.

Triton tigrinus. *Trit. testá fusiformi, lævi, subcostatá, anfrac-*

tibus subangulatis, hinc et hinc subnodosis, anfractu basali ventricoso, lato, et suturam juxta carinato; spirá elongatá, attenuatá; croceo-fuscá, varicibus et labri limbo externo, nigro vel castaneo maculatis; aperturá expansá, aurantiacá, strigis et maculis nigro-castaneis pictá; epidermide fuscá, subfoliaceá: long. $6\frac{5}{8}$, *lat.* 4 *poll.*

Hab. in Americâ Centrali. (Guacomayo.)

This fine shell bears some distant resemblance to *Trit. femoralis*, and there was a specimen in the Tankerville collection marked No. 1718. a. in the Catalogue as a variety of that species in these terms: "Var. notabilis, latissima, aperturâ expansâ." This resemblance is greater in dwarfs than in well-grown individuals, but the length and shape of the spire, the comparative smoothness, the breadth of the ventricose body-whorl, the expanded aperture with its rich orange mouth, variegated towards the border of the outer lip with dark chestnut stripes in pairs, and the shortness of the canal, indicate that *Trit. tigrinus* is very distinct from *Trit. femoralis*; and Mr. Sowerby, who drew up the Tankerville Catalogue, is now of that opinion. The throat or internal part of the aperture is of a blueish white, and, as in the rest of the species, the outer lip, and, consequently, the *varices*, acquire a greater thickness as the shell advances in age. The *epidermis* is particularly foliaceous upon the *varices* and edge of the outer lip.

Mr. Cuming dredged up this species at Guacomayo from a bottom of sandy mud at the depth of eleven fathoms.—W. J. B.

TRITON RUDIS. *Trit. testá ovato-fusiformi, fulvá, transversim lineatá, longitudinaliter unduloso-nodosá; aperturá albá, labro intùs denticulato; epidermide fuscá, rugosá: long.* $1\frac{7}{8}$, *lat.* $1\frac{3}{8}$ *poll.*

Hab. ad Peruviam. (Iquiqui.)

The aperture of this shell has the appearance of white porcelain, and the internal denticles, placed about the eighth of an inch from the margin of the lip, are ranged in a line. There are a few obscure plaits towards the bottom of the pillar, and the canal is open, very short, and somewhat recurved. This species approaches *Buccinum* very closely.

Found in mud and sand at a depth of from six to ten fathoms, and in coarse gravel at the depth of nine fathoms.—W. J. B.

TRITON LINEATUS. *Trit. testá sub-fusiformi, undulato-nodulosá, subcancellatá, pallidè flavá lineis transversis crenulatis, fusco-castaneis, frequentibus vittatá; anfractibus subventricosis, varicibus crassis; aperturæ ovatæ margine albo, denticulato, fauce atro-purpureá: long.* $2\frac{3}{8}$, *lat.* $1\frac{2}{8}$ *poll.*

Hab. ad Insulas Gallapagos.

In young shells the rich dark purple of the throat, with its denticulated white border, is absent, but in these the *varices* are thick and large. In a young shell of this species I found the remains of a very beautiful *Pagurus*, which is new to me. The legs, two of which are the only visible remnants, are of a brownish black, and the feet are tipped with red. The body whorl of *Trit. lineatus* (including the canal which is moderate,) is twice the length of the spire, and much more ventricose than the other whorls.

Found in coral sand, in six fathoms.—W. J. B.

Triton gibbosus. *Trit. testá sub-fusiformi, subfulvá vel subfuscá, subnodulosá, transversim creberrimè lineatá; anfractibus subtrigonis; aperturá subrotundá, albá, labri expansi radiati margine interno dentato: long.* 1½, *lat.* 1¼ *poll.*

Hab. ad Panamam et ad Montem Christi.

This shell approaches *Trit. lineatus*, but differs from it in many points.

Found in coarse sand at the depth of seven fathoms.—W. J. B.

Triton scalariformis. *Trit. testá fusiformi, sordidè albá, subcancellatá, lineis transversis elevatis, crassiusculis, crenulatis, crebris vittatá; labri limbo subfimbriato; canali brevi, subrecurvá: long.* ⅞, *lat.* ⅜ *poll.*

Hab. in sinu Montijano.

This elaborately wrought species has the *varices*, in well-grown specimens, placed with a regularity that almost entitles it to a situation among the *Ranellæ*. It was found in coarse sand at the depth of ten fathoms.—W. J. B.

Triton convolutus. *Trit. testá fusiformi, spirá elongatá, albidá, lineis elevatis, subacutis, creberrimis vittatá; labri margine crenulato: long.* 1⅛, *lat.* ½ *poll.*

Mus. Sowerby.

This species approaches *Trit. scalariformis*, but differs materially from it. The lines which gird *Trit. convolutus* are much finer, much more frequent than those of *Trit. scalariformis*, and are without the crenulations that distinguish the coarser ridges of the latter. There are also other points of difference, and the *varices* are irregular and not arranged in a nearly lateral direction as they are in the last-mentioned species.

Mr. Sowerby, who sent me this shell, does not know its locality.—W. J. B.

Genus TURBINELLA.

Turbinella tuberculata. *Turb. testá fusiformi-turritá, transversim tuberculato-costatá, et insterstitialiter striatá, anfractibus angulatis, angulis noduliferis, albidá costis nodulisque nigro-castaneis; aperturá albá, columellá* 3—4-*plicatá: long.* 1⅝, *lat.* 1 *poll.*

Hab. ad Insulas Gallapagos.

Found under stones.

This shell, in its general appearance, approaches some of the *Pleurotomata*, which have a short canal.—W. J. B.

Turbinella armata. *Turb. testá fusiformi, transversim striatá, tuberculis spinisque fortibus muricatá, griseo castaneoque fasciatá et maculatá; aperturá albá; columellá* 6—7-*plicatá, labro sinuato, intùs striato et dentato, dentibus castaneis: long.* 2¼, *lat.* 1⅜ *poll.*

Hab. ad Insulam Elizabethæ.

The tubercles and strong spines are disposed in transverse series. The angle of the body whorl is coronated with spines, and then follows, after an interstitial transversely striated space, a band of large tubercles; this is followed by an intermediate space transversely ribbed and striated, and towards the base is an elevated transverse ridge, armed with stout but rather blunt spines; the other whorls have one row of spines only, and no tubercles.

Found on the coral reef.—W. J. B.

TURBINELLA CÆSTUS. *Turb. testá subrhomboideá, crassissimá, ponderosissimá, albá, anfractu basali longitudinaliter subplicato, angulato et transversim sulcato, angulo tuberculis conico acutis, maximis, armato, sulcis maximis; cingulis basalibus tuberculatis, penultimo maximo; columellá quadriplicatá; labro sinuato; epidermide crassá, longitudinaliter striatá; umbilico magno: long. 3⅞, lat. 3⅛ poll.*

Hab. ad Caraccas.

This species approaches nearest to *Turb. pugillaris*, but the difference of shape, the extreme thickness and weight of the shell, the smaller number but increased size of the furrows, the immense bulk of the conical tubercles, the reduced number of the plaits on the pillar, and the enlarged *umbilicus*, point it out as distinct,—to say nothing of the *epidermis*, which is much thicker and coarser, and not unlike that of *Pyrula patula*, nobis. *Turb. Cæstus* varies much in size, but not in character.

It was found in soft mud among the rocks of the bay.—W. J. B.

Genus PURPURA.

PURPURA XANTHOSTOMA. *Purp. testá ovato-acutá, ventricosá, tuberculiferá, longitudinaliter subplicatá, transversim costatá et interstitialiter striatá, anfractibus angulatis; aperturá flavá, nitente; labro intùs substriato et denticulato, striis distantibus, dentibus intermediis; long. 3⅛, lat. 2⅛ poll.*

Hab. ad Valparaiso.

The angulated body-whorl, which is nearly thrice as long as the spire, is crowned by waved tubercles. The aperture is of a shining yellow, and the denticles, which are whitish, are generally placed in pairs between the internal *striæ* of the outer lip.

Dredged up from gravel and sand at a depth of from seven to twenty-five fathoms.—W. J. B.

A paper was read by Dr. Grant, "On the Nervous System of *Beroë Pileus*, Lam., and on the Structure of its *cilia*."

Dr. Grant having obtained, in September last, on the coast of Sheppey, a specimen of this animal, examined it with great care; and from this examination he describes it in detail as regards its external form, its alimentary canal, its ovaries, and its two lengthened *tentacula*, which latter organs distinguish it from the group comprehending *Beroë ovatus*; and mark it as the type of a genus designated by Péron *Eucharis*, and by Dr. Fleming *Pleurobrachia*.

At a short distance above the mouth a double transverse filament, resembling in colour the abdominal nerves of *Pectinaria*, surrounds the body: it swells out in each space intervening between the bands of *cilia* into a *ganglion;* and from each of these *ganglia* there pass on each side two nerves to the adjoining band, while a larger filament proceeds upwards to beyond the middle of the body, having two or three smaller ganglionic enlargements, from which filaments are detached to the *viscera*. The whole of this system is seated near the surface of the body. In the circular disposition of the central filaments and *ganglia*, and in the regular radiation of nerves from that centre, it resembles the nervous system of *Holothuria* and *Asterias* among the *Echinodermata*.

The comparatively large size of the *cilia* on the *Beroë Pileus*, enabled Dr. Grant to observe their structure more satisfactorily than in the microscopic animals on which they have previously been particularly noticed. In the latter they appear like flat tapering filaments prolonged from the homogeneous cellular tissue of the body to which they are attached. But in the *Beroë* it is evident that they are not single fibres, but consist of several straight, short, transparent filaments placed parallel to each other in a single row, and connected together by the skin of the animal, like the rays supporting the fin of a fish. These fins are of the same breadth with the band to which they are attached, and extend from the mouth to the *anus*, there being about forty on each band. Under a lens the parallel fibres appear like transparent tubes, sometimes a little detached from each other at their extremities, by injury done to the connecting membrane, and at these parts the isolated spines project stiffly outwards. When the *cilia* are in active vibration, there is observed along the middle of each band to which they are attached, a motion like the continued undulations of a fluid. Connecting this with the analogy which may be deduced from the motion produced in the tubular feet of *Asterias* and *Echinus* by the entrance and exit of water sent into them by vessels destined for that office, it seems highly probable that the motions of the *cilia* of *Beroë* are intimately connected with the streams passing along the bands, and that hence an explanation may be obtained of one of the most remarkable phænomena of animal motion, which is at the same time one of the most frequent occurrence among the less highly organized of animated beings.

Dr. Grant's paper will be published entire, with a figure of the animal, in the Society's Transactions.

Mr. Yarrell detailed some observations on the changes of plumage in *Birds;* which he illustrated by Notes on several species in the Society's Gardens made by James Hunt, one of the Keepers.

In his observations Mr. Yarrell pointed out three modes by which changes in the appearance of the plumage of birds are produced: 1. By the feather itself becoming altered in colour. 2. By the bird's obtaining a certain portion of new feathers without shedding any of the old ones. 3. By an entire or partial moult, in which the old feathers are thrown off, and new ones produced in their places. The first two of these modes of change are observed generally in the spring, indicating the approach of the breeding season; the third is usually partial in the spring, and entire in the autumn.

The Keeper's notes furnish some remarkable instances of change of plumage, observed by him on birds in the Society's Menagerie:—on the *Ruff*, *Tringa pugnax*, Linn., in which the spring moult is partial, and in which the ruff produced round the neck of the male preparatory to the breeding season is found to differ in colour in successive years; that of an individual which had it black in 1832 having been ash-coloured in 1831:—on the *Mandarin Duck*, *Anas galericulata*, Linn., which moults entirely in the spring, and undergoes a partial moult in the autumn, to assume his breeding plumage:—on the *Summer Duck*, *Dendronessa sponsa*, Swains., which resembles the preceding in its moult:—on the *Cormorant*, *Carbo Cormoranus*, Meyer, which acquires in the spring white feathers on the head and neck, and on the thighs, without parting with any of its old feathers:—on the immature *Herring Gull* and *lesser black-backed Gull*, *Lari argentatus* and *fuscus*, Brunn., which during two years have been undergoing a continued change of colour in their feathers, independent of moulting, which does not appear to influence the change of colour:—and on the *laughing Gull*, *Larus ridibundus*, Linn., in which the feathers of the head change in the spring from white to black, the colour alone being changed without a feather being shed, and the change being effected in four or five days; in the autumn the black feathers are moulted, and are replaced by white ones.

Mr. Yarrell stated his intention of entering more fully into the explanation of the laws which regulate the changes of plumage in Birds, in a paper which he is preparing to lay before an early meeting of the Society.

A Note by James Hunt, one of the Society's Keepers, was read. It related to the breeding of the *Passenger Pigeon*, *Ectopistes migratorius*, Swains., in the Society's Menagerie.

"A pair of these birds began to build their nest on the 25th of April, 1832, having been three or four days in selecting a proper place in a fir-tree in the inclosure appropriated at the Gardens to the *Pigeons*. The female was the nest-builder. The male bird performed the most laborious part of the work: he collected and conveyed to the spot all the materials, principally sticks and straw, of which the nest was composed. He alighted on the back of the female with each fresh supply, so as not to disarrange any part of the nest which she had formed. They began their task in the morning, and completed it the same evening. One egg was laid on the morning of the 26th, and the female commenced sitting immediately. A young bird was hatched in sixteen days. The male relieved the female during the period of incubation."

Another instance of the breeding in this country of the *Passenger Pigeon* occurred nearly at the same time in the Menagerie of the President.

January 22, 1833.

William Yarrell, Esq. in the Chair.

A letter was read, addressed to Charles Telfair, Esq., Corr. Memb. Z.S., as President of the Mauritius Natural History Society, by M. Goudot. It is dated at Tamatave (in the island of Madagascar), April 20, 1832, and contains an account of a remarkable phænomenon, connected with a tree of the genus *Morus*, which is not uncommon in the vicinity of that place. From the branches of this tree, which are covered with a thick coriaceous foliage, there is seen to fall, more especially towards mid-day, and under the influence of a burning and almost vertical sun, a copious and refreshing supply of limpid dew, or rather rain. On ascending the tree an explanation of this singular property is at once obtained. Around the vigorous shoots, loaded with leaves, and particularly at their ramifications, are found large clusters of *larvæ*, covered by a whitish froth, in constant agitation, and pressing eagerly upon each other in their attempts to apply themselves to the surface of the bark, from which they extract the sap in such quantity as to maintain their bodies in a state of saturated humidity. This sap is afterwards poured out, either through particular organs scattered over the surface of the body, or by means of the common excretory ducts, and forms drops of small size, which are gradually collected into larger drops, and appear to M. Goudot to escape from the bodies of the *larvæ* with a rapidity proportioned to the action of the solar rays. The activity of the *larvæ* is, in fact, increased in a corresponding degree with the increase in the atmospheric temperature. Towards evening, and when the influence of the solar rays is sensibly diminished, the production of the fluid, thus singularly secreted, is partially suspended, and the drops fall slowly; as night advances, a few rare and tardy drops are heard at distant intervals; until at last they altogether cease, to be again renewed with the first rays of the morning sun. When fifty or a hundred such clusters of *larvæ* are placed, as often happens, on the same tree, it may well be imagined that the secretion may become sufficiently copious to assume the appearance of actual rain.

Some idea of the rapidity with which it falls may be obtained from the mode in which M. Goudot collected a bottleful for transmission to the Natural History Society of the Mauritius. He states that in the beginning of February, he placed under one of the trees in question a vessel capable of holding about a *litre* (nearly equal to an English quart). The mass of *larvæ* selected as purveyors consisted of from sixty to seventy individuals, about half grown; and the sun being powerful, the drops were very large, and fell in quick succession. He estimates that, setting aside the loss by evaporation, and by the animals which drank from the vessel, he could have filled the bottle in an hour and a half. The limpid character of the water encouraging the belief that it was free from any pernicious qualities, M. Goudot tasted it, and found no unpleasant flavour: he also gave it to some fowls, without producing any inconvenience. When exposed to the air, however, it speedily loses its transparency, and assumes a lemon-coloured tinge.

The insect by whose *larva* the fluid is secreted, is described at length by M. Goudot as a species of the genus *Cercopis* of Latreille, and nearly related to the *Cercopis spumaria* (*Cicada*, Linn.) of Europe; which latter recalls in miniature what takes place in the large Madagascar *larva*, secreting, like it, large quantities of white froth, and suspending itself, with its foamy mantle, from the blades of grass on which it feeds. It appears to be entirely new, and as M. Goudot had neglected to name it, Mr. Bennett stated that he embraced with pleasure the opportunity of dedicating it to its discoverer, under the name of *Aphrophora Goudoti*, the former name having been generically applied by M. Germar to that subdivision of Latreille's genus *Cercopis*, to which the insect in question belongs. He characterized it as follows:

APHROPHORA GOUDOTI. *Aph. nigra; thorace flavescenti, punctis 4 nigris anticis transversim positis, duobus intermediis impressis; capite scutelloque flavis, hoc punctis* 4 (2—2).
Long. corp. 1 unc. 1 lin.

The size above given is that of the specimens communicated to the Society by Mr. Telfair; but M. Goudot states that the insect attains a length of 36 millimetres, which is little short of an inch and a half. He adds, that even after having attained its perfect state it remains upon the tree, fixed to the small branches, but in a state of isolation: and that, having observed several individuals in this condition, he perceived that they continued to emit, from time to time, minute drops of clear and limpid water. He describes the *larva* as being about 30 millimetres in length at its full period of growth, its colours consisting of an irregular mixture of dull grey, yellowish and black. The legs are entirely black, and the claws which terminate the *taxsi* very strong. It emits a disagreeable scent.

Mr. Bennett called the attention of the Society to a stuffed specimen of an *Antelope*, from the southern part of the peninsula of India, which had been presented to the Society several months since by Charles Telfair, Esq., Corr. Memb. Z.S. He remarked, that notwithstanding some discrepancies between the specimen exhibited and the description published by Pallas, he was disposed to regard it as the young of the *Indian Antelope*, *Antilope Cervicapra*, Pall. Its general colour is pale fawn, and it has a paler streak on each side, passing from the shoulders to the haunches; characters by which, as well as by the form of its horns, the pale circle surrounding the eyes, and the white patch under the tail, it agrees with the young of the *Indian Antelope*: but it differs by the fawn colour extending down the sides to the under parts of the body, which are merely of a lighter shade than the upper, and are not pure white; and by the length of the ears, which does not exceed 4 inches, while in no specimen of the *Indian Antelope* possessed by the Society, is the length of these organs less than 5 inches. The latter circumstance is so remarkable, as to suggest the necessity of further inquiries into the history of the race from which this individual was derived. Its age may be conjectured from the size of its horns, which have made two nearly complete turns, and are surrounded by eighteen rings.

Specimens were exhibited of the adult male of the *lineated Pheasant*, *Phasianus lineatus*, Lath., and of two immature birds of the same species: for the whole of these the Society is indebted to George Swinton, Esq., Corr. Memb. Z.S. The immature birds died on their passage to this country; the adult skin was obtained from the Tennasserim coast.

At the request of the Chairman, Mr. Gould made some observations on these specimens. The adult bird differs in some particulars from the description published by Dr. Latham. "Its total length is 2 feet 8 inches; the length of the wings, from the shoulder to the end of the longest feather, 9 inches; of the beak, from the gape to the tip, 1½ inch; of the *tarsus*, 3¼ inches; and of the tail, 1 foot 2 inches.

"The beak is strong, and considerably arched; the naked space round the eye bright red, and covered with numerous *papillæ*; the head crested with long glossy blue-black feathers; the back of the neck, and whole of the upper surface, delicate grey, very numerously barred with fine zigzag lines of black, which are broader on the quill feathers; the throat, breast, and belly, black; the sides of the breast and flanks having white lanceolate feathers with black edges; the tail, of eighteen feathers, very much graduated, and arched, as in the *Silver Pheasant*, *Phasianus Nycthemerus*, Linn., the outer edge of the two centre feathers, and the tips of the two next, being white; the remainder are alternately marked with irregular lines of black and white, the black predominating; and the legs strong, of a reddish flesh colour, furnished with conical sharp spurs.

"The two immature birds are alike in colouring, and appear to be male and female. They differ very materially from the adult, and very much resemble the female or the young male of the *Silver Pheasant*. They are about 18 inches in length; wing, 8½ inches; *tarsus*, 2¾; beak, 1½; tail, 10. The head is crested with feathers nearly 2 inches long, of a reddish brown, obscurely marked with minute zigzag lines of black; the naked skin round the eye is not so much developed as in the adult male; the neck, throat, breast, and under parts are brown, each feather having a lancet-shaped mark of white; the whole of the back and shoulders brown, minutely sprinkled with a darker colour; the quill-feathers brown, having the outer edges barred with yellowish white; the secondaries brown, with oblique, irregular, and narrow lines of a lighter colour; the tail irregularly barred, and dotted with rich brown and yellowish white; the legs and feet reddish brown."

Dr. Grant exhibited numerous specimens of *Ianthina vulgaris*, Lam., and of *Velella limbosa*, Lam., both animals of rare occurrence on the English coast, and chiefly met with floating in tropical or warmer seas. They were obtained by him at the beginning of September last, in Whitsand Bay, close to the point of the Land's End, Cornwall, where they were thrown in great numbers on the sands, after a storm, of three days' continuance, from the north-west: they must consequently have been floating, before they were directed to the coast by the storm, in latitudes at least as high as that in which they were found. Dr. Grant regards it as probable that neither of these animals is capable of discharging at will the gaseous fluid by which they are supported on the surface of the sea; otherwise in such a violent and continued tempest as that which stranded them, they would have emptied their vesicles, and have sunk to the stiller bottom. He suspects also that *Physalia* is equally incapable of emptying its air-bag.

In the *Velellæ* of our coast, Dr. Grant remarked, as in those of tropical seas, the perpendicular crest crosses obliquely the horizontal disc of the base; in both, the margin of the mantle, destitute of *tentacula*, hangs free over the circumference of the disc; in both, the outer ranges of *tentacula* are long and filiform, and the inner ranges of *tentacula*, immediately surrounding the mouth, are short, thick, tubular, and much resembling the fleshy tubular feet of *Echinodermata*; and in both, the mouth forms a projecting fleshy tube in the centre of the base of the body. The tubular mouth in the centre, much resembling in form the short tubular feet around it, leads to an oval stomach, occupying a concavity in the middle of the lower surface of the thick basilar plate. But in the *Indian Velella* the perpendicular crest is proportionally very strong and thick, and presents a beautifully serrated margin, and that margin takes a zigzag course, which he has not observed in our specimens, and which must add much to its effects in decomposing the sun-beams, while swimming on the calm surface of tropical seas.

The specimens of *Velella* cast on the shore of Cornwall were generally much injured, and many of them had lost all their fleshy substance. Nearly a hundred of them were collected, and were exhibited to the Society. On lifting them, the deep blue matter of their surface came easily off, and tinged the fingers, like the yellow matter of decaying *Asteriæ*, or the colouring matter of the surface of almost all the *Echinodermata*, when their vitality has ceased.

The *Velella* probably feeds on the myriads of microscopic *Crustacea*, which abound in every part of the sea; and the *Ianthina*, a predaceous *Gasteropod* thus accompanying the *Velella*, may prey upon it, and acquire from it the blue colouring matter of its shell.

February 12, 1833.

William Yarrell, Esq., in the Chair.

A letter from M. Geoffroy-Saint-Hilaire, For. Memb. Z.S., was read, consisting of reflections on the communication respecting the *Ornithorhynchus*, made by Dr. Weatherhead to the Committee of Science and Correspondence, on September 11, 1832, and published in the Proceedings, Part II. p. 145. With this communication M. Geoffroy-Saint-Hilaire was only partially acquainted, by the extracts from it given by Mr. Owen (with some observations upon them,) as an Appendix to his Paper on the Mammary Glands of the *Ornithorhynchus paradoxus*, published in the Philosophical Transactions for 1832: he requests to have a literal copy of the communication.

He recalls attention to the history of our knowledge of the sexual organs of *Ornithorhynchus*; refers to M. Meckel's discovery of a gland, situated under the integuments of the *abdomen* of the female, and considered by him as mammary, and to his own subsequent observations on this subject, in which these glands are regarded as analogous to the structure that surrounds the true mammary glands of the *Shrews*; and hints at the probability that M. Meckel may not, in 1833, entertain the same ideas which he expressed in 1826. M. Geoffroy-Saint-Hilaire repeats some of the most striking peculiarities of the organs of reproduction: 1, the existence of a *uterus* and *vagina* in a state of atrophy, which he has repeatedly represented under the name of a little indistinct organ, the utero-vaginal canal; 2, the non-continuity of the urinary bladder to the ureters; 3, the interposition, when in action, of the genital organ between the folds, &c.; and, referring to his published accounts of the sexual anomaly in all its details, reproduces the conclusion to which he has been led by his observation of these parts. The organization, he finds, is that of a *Reptile*; now, such as the organ is, such must be its function; the sexual apparatus of an oviparous animal can produce nothing but an egg.

The statement that a milky fluid has been observed is one which especially attracts M. Geoffroy-Saint-Hilaire's attention: he is anxious to know the details of this observation. Supposing it established, rather than believe in a secretion of real milk from long cellular *cæca*, of which Meckel's gland is composed, (whereas, he states, it can be secreted only from lactiferous *ganglia*,) he would be disposed to think that this gland might secrete carbonate of soda [lime ?], the earthy matter of which egg-shells are composed. This would be extraordinary, he admits; but what is there about the organization of the *Monotremata* that is not extraordinary, or, in other words, different from what we find in the *Mammalia*? This additional anomaly seems to lead to its necessary consequence, he remarks, and an hypothesis which suggests the necessity of further examination is far better, in his opinion, than an assimilation to normality, founded on strained and mistaken relations, which invites indolence to believe and slumber.

M. Geoffroy-Saint-Hilaire concludes by repeating his request for a literal copy of the whole of the letter addressed by Lieut. the Honourable Lauderdale Maule to Dr. Weatherhead. If the facts contained in it, he remarks, should make him change his opinion, so much the better: he would rather be put right, than indulged in any views formed *à priori*; in this way he learns more; and it is to him always more gratifying to get rid of an error in science than to introduce into it an additional observation.

The Vice-Secretary stated, that the request of M. Geoffroy-Saint-Hilaire for a copy of the letter in question had been complied with. He also referred to the Proceedings of the Committee of Science and Correspondence, Part II. p. 179, for an account of the glands discovered in *Echidna* by Mr. Owen, who, in his observations there published, briefly adduces several reasons why little difficulty should be experienced in the consideration of the *Monotremata* as oviparous or ovoviviparous, and at the same time as mammiferous animals.

A letter was read from William Willshire, Esq., Corr. Memb. Z.S., H. M.'s Vice-Consul at Mogadore, giving an account of a *Reptile*, known by the Arabs under the name of *el Dub*. A living specimen of the animal, presented to the Society by Mr. Willshire, accompanied the letter. It is the *Uromastyx acanthinurus*, described and figured by Mr. Bell in the first volume of the 'Zoological Journal,' from specimens brought from Fezzan by Capt. Lyon. The *Dub* is noticed by Marmol, Capt. Lyon, and other travellers; but the precise species to which the reptile so named was referrible had not, previously to the arrival of Mr. Willshire's specimen, been satisfactorily ascertained.

A note from Col. Hallam was read, accompanying drawings of the *Mango-fish*, *Polynemus paradisæus*, Linn.; and of two individuals of a race of *pigs* with only two legs, the hinder extremities being entirely wanting. The latter, Col. Hallam states, were observed "at a town on the coast in the Tanjore country, in the year 1795: they were from a father and mother of a similar make, and the pigs bred from them were the same."

The exhibition was resumed of the collection of *Shells* formed by Mr. Cuming on the western coast of South America, and among the islands of the South Pacific Ocean. The new species brought on the present evening under the notice of the Society were accompanied by characters by Mr. G. B. Sowerby.

Genus BYSSOARCA, *Swains.*

BYSSOARCA LITHODOMUS. *Byss. testá elongatá, cuneiformi, subcylindraceá, (utplurimum erosá,) concinnè decussato-striatá; latere antico breviore, obliquè truncato, postico elongato, declivi; rotundato-acuminato; areá ligamenti profundá, ligamento an-*

ticè in angulum obtusum desinente; epidermide denticulatâ, ad angulum anticum subfoliaceâ, conspicuâ: long. 3·5, *lat.* 0·9, *alt.* 1· *poll.*

Hab. ad Montem Christi.

Found in holes in stones, pierced by *Pholades*? at low water.

This is a very remarkable species, decidedly appertaining to Mr. Swainson's genus *Byssoarca*. Its hinge line is entirely posterior, very straight, and the teeth are very numerous, very small, and much interrupted.—G. B. S.

BYSSOARCA PACIFICA. *Byss. testâ oblongâ, pallidâ, brunneo variè strigatâ; radiatim costatâ; medio coarctato, costis minoribus; umbonibus remotissimis; latere antico breviore, supernè acuminato, costis plerumque majoribus, rugosis, margine ventrali declivi; latere postico maximo, posticè emarginato, carinâ obtusâ ex umbone ad marginem ventralem decurrente; areâ ligamenti maximâ, marginibus latis; margine ventrali hiatu byssi magno: long.* 4·, *lat.* 2·5, *alt.* 2·3 *poll.*

Hab. ad Sanctam Elenam.

Found on rocky ground, in from six to eighteen fathoms, adhering to each other in large bunches.—G. B. S.

BYSSOARCA ALTERNATA. *Byss. testâ oblongâ, subcylindraceâ, pallidè brunneâ, radiatim striatâ, anticè posticèque profundè sulcatâ; latere antico brevissimo, supernè obtusè angulato, infrà rotundato; postico elongato, costis duabus validis ex umbone ad marginem ventralem posticam decurrentibus, costis posticis validis rugosis; dentibus marginalibus posticis alternantibus; areâ ligamenti angustâ, anticè latiore: long.* 1·4, *lat.* 0·7, *alt.* 0·6 *poll.*

Hab. in Columbiâ Occidentali.

Found attached to stones, on a rocky bottom, in twelve fathoms. —G. B. S.

BYSSOARCA MACULATA. *Byss. testâ oblongâ, subrhomboideâ, obliquâ, decussatim striatâ, pallidâ; areâ posticâ fusco-maculatâ; latere antico parvo, supernè angulato, latere postico longiore, supernè angulato, carinâ validâ ex umbone ad marginem inferam et posticam decurrente; areâ ligamenti latâ; umbonibus incurvis: long.* 1·35, *lat.* 0·75, *alt.* 0·8 *poll.*

Hab. ad insulas Oceani Pacifici.

Found attached to *Mother-of-pearl Shells* at Lord Hood's Island.

A thin pale-coloured *epidermis* covers the shell, which is conspicuous on the edge of the posterior ridge, where it forms lengthened plumose *setæ*.—G. B. S.

BYSSOARCA MUTABILIS. *Byss. testâ oblongâ, pallidè fuscâ, decussatim striatâ; latere antico plerumque breviore, nonnunquam subæquali, supernè angulato, subtùs rotundato; postico longiusculo, supernè angulato, carinâ ex umbone ad marginem inferam et posticam decurrente; areâ posticâ sulcis majoribus decussatis: long.* 1·9, *lat.* 1·1, *alt.* 0·9 *poll.*

Hab. in Columbiâ Occidentali.
Found under stones at the Isle of Plata.—G. B. S.

Byssoarca divaricata. *Byss. testá oblongá, albicante, longitudinaliter sulcatá et radiatim decussatâ; latere antico supernè subangulato, postico cariná ex umbone ad marginem ventralem posticam decurrente spiniferá, sulcis divaricatis, eleganter decussatis conspicuo; areá ligamenti angustâ: long.* 1·, *lat.* 0·5, *alt.* 0·55 *poll.*

Hab. ad littora insularum Maris Pacifici. (Annaa or Chain Island.)

Found attached to stones.—G. B. S.

Byssoarca decussata. *Byss. testá oblongá, albá, decussatim striatá, epidermide squamoso-setosá indutá; latere antico breviore, supernè subangulato; postico supernè rotundato-angulato, infrà rotundato; margine ventrali rectiusculá; areá ligamenti angustá: long.* 2·, *lat.* 1·, *alt.* 1·2 *poll.*

Hab. ad littora insularum Oceani Pacifici.

Found attached to *Mother-of-pearl Shells* at Lord Hood's and Chain Islands.—G. B. S.

Byssoarca illota. *Byss. testá ovatá, albá, radiatim costatá, costis numerosis, decussatis; epidermide fuscá, foliaceá indutá; latere antico breviore, rotundato, postico declivi; areâ ligamenti angustá, brevi: long.* 1·5, *lat.* 0·75, *alt.* 1· *poll.*

Hab. in Americâ Centrali.

Found under stones in the Gulf of Nocoiyo.—G. B. S.

Byssoarca velata. *Byss. testá ovatâ, compressiusculá, radiatim costatá et decussatá; dorso biangulato; epidermide fuscá, squamosá, squamis acuminatis; areá ligamenti angustá: long.* 3·1, *lat.* 1·8, *alt.* 1· *poll.*

Hab. ad littora insularum Oceani Pacifici.

Found attached to *Mother-of-pearl Shells* at Lord Hood's and Chain Islands. One specimen is 6 inches long.—G. B. S.

Byssoarca solida. *Byss. testá ovato-quadratâ, crassá, solidá, æquilaterali, radiatim striatá, minutissimè decussatá; latere antico rotundato, postico supernè obtusè angulato, obsoletè carinato; areá ligamenti elongatá, ligamento rhomboideo, centrali: long.* 0·6, *lat.* 0·5, *alt.* 0·4 *poll.*

Hab. ad Paytam, Peruviæ.

Found under stones.—G. B. S.

Byssoarca pusilla. *Byss. testá ovato-subrhomboidali, albidá, decussatá; latere antico breviore, rotundato, postico longiore, declivi; margine dorsali posticá angulatá; areá ligamenti angustá; ligamento brevi, ad posticam areæ partem solùm adjuncto; cariná obtusá ex umbone ad marginem posticam inferiorem decurrente: long.* 0·45, *lat.* 0·2, *alt.* 0·25 *poll.*

Hab. ad Iquiqui, Peruviæ.

Found attached to stones at low water.—G. B. S.

Byssoarca truncata. *Byss. testâ oblongâ, naviculiformi, fuscâ, parte medianâ anticâque radiatim striatis, striis granosis; carinâ obtusâ ex umbone ad marginem posticam inferiorem decurrente; parte posticâ radiatim costatâ, costis interstitiisque obtusis, rugosis; latere antico brevissimo, supernè angulato, infrà rotundato, postico elongato, abruptè truncato; areâ ligamenti elongatâ, latâ, ligamento quadrangulari, prope anticam areæ partem solùm adjuncto: long.* 2·3, *lat.* 1·1, *alt.* 1·2 *poll.*

Hab. ad Insulas Gallapagos, saxis adhærens.

This species has also been found at Lord Hood's Island attached to *Mother-of-pearl Shells.*—G. B. S.

Byssoarca lurida. *Byss. testâ ovato-oblongâ, decussato-striatâ, castaneâ, epidermide fuscâ fimbriato-lacerâ indutâ; latère antico rotundato, postico obliquè truncato; margine dorsali posticè angulatâ, ventrali posticè rotundato-angulatâ: long.* 1·5, *lat.* 0·75, *alt.* 0·8 *poll.*

Hab. ad Sanctam Elenam.

Found attached to stones, at a depth of twelve fathoms, in rocky ground.

This species varies in its proportions.—G. B. S.

Byssoarca parva. *Byss. testâ oblongâ, parvâ, pulcherrimè decussato-striatâ, castaneâ; latere antico brevi, rotundato, postico elongato; areâ ligamenti breviusculâ, angustâ: long.* 0·8, *lat.* 0·35, *alt.* 0·4 *poll.*

Hab. ad littora insularum Oceani Pacifici.

Found in coral rock, and attached to *Mother-of-pearl Shells,* at Ducie's Island.—G. B. S.

Genus Arca.

§ Æquivalves.

Arca tuberculosa. *Arca testâ ovali, turgidâ, obliquâ, subauritâ, radiatim costatâ, costis numerosis, sparsim tuberculiferis, anticè præsertim; umbonibus proximis; areâ ligamentiferâ angustâ; latere antico breviore: long.* 2·8, *alt.* 2·2, *lat.* 2·1 *poll.*

Hab. ad Real Llejos.

Found at low water at the roots of the Mangrove trees.

The shell is covered, except the *umbones*, with a thick dark-brown *epidermis.*—G. B. S.

Arca Nux. *Arca testâ obliquâ, turgidâ, inæquivalvi, radiatim costatâ; valvæ dextralis costis anticis graniferis, sinistralis costis omnibus graniferis; umbonibus distantibus, prominentibus; epidermide fuscâ, corneâ, tenui, ad posticam costarum partem setigerâ: long.* 0·7, *lat.* 0·6, *alt.* 0·65 *poll.*

Hab. ad Xipixapi.

Found in sandy mud at a depth of twelve fathoms.—G. B. S.

ARCA REVERSA. *Arca testâ obliquâ, turgidâ, radiatim costatâ, costis rugulosis; latere postico longiore, rotundato, antico breviore, obliquè truncato; umbonibus approximatis; areâ ligamentiferâ angustâ, omninò posticâ; epidermide fuscâ, crassâ, hirsutâ: long.* 1·15, *lat.* 0·8, *alt.* 0·9 *poll.*

Hab. in Peruviâ.

Found in soft mud, at a depth of seven fathoms, at Tumbez.

Named by Mr. Gray from a specimen in Mr. Foy's cabinet.—G. B. S.

ARCA CONCINNA. *Arca testâ oblongâ, inæquivalvi, albâ, radiatim costatâ, costis anticis rugulosis, interstitiis decussatis; latere antico breviore, supernè angulato; latere postico pone angulum inconspicuum productiore; areâ ligamenti angustâ, anticè utrinque crenulatâ; ligamento postico; epidermide olivaceâ, ad sulcos anticè posticèque spiniferâ: long.* 1·15, *lat.* 0·5, *alt.* 0·65 *poll.*

Hab. in Americâ Centrali.

Found in coarse sand, at a depth of twelve fathoms, in the Gulf of Nocoiyo.—G. B. S.

ARCA EMARGINATA. *Arca testâ oblongâ, subcylindraceâ, inæquivalvi, albâ, radiatim costatâ; latere antico brevi, costis angustioribus, rugulosis; latere postico elongato, costis latioribus, lævibus; margine posticâ superiore emarginatâ; areâ ligamenti angustâ; epidermide fuscâ, ad sulcos setosâ: long.* 1·6, *lat.* 0·7, *alt.* 0·8 *poll.*

Hab. ad littora Maris Pacifici.

From Atacamas, Real Llejos, Xipixapi, Panama, and the Gulf of California.—G. B. S.

ARCA FORMOSA. *Arca testâ oblongâ, subcylindricâ, albicante, radiatim costatâ, epidermide fuscâ squamoso-setosâ obtectâ; costis numerosis, planulatis, anterioribus duplicatis; margine cardinali utrâque angulatâ; latere antico breviore; areâ cardinali elongatâ, latiusculâ: long.* 4·8, *lat.* 2·3, *alt.* 2·3 *poll.*

Hab. in Americâ Centrali. (Gulf of Tehuantepec.)

This very fine species of *Arca* most nearly resembles the *Arca Scapha*, but is much longer in proportion to its breadth and height. It is covered, in the interstices of the ribs, with long, pointed scales, which become longer bristly hairs at the posterior side.—G. B. S.

ARCA AURICULATA. *Arca testâ oblongâ, albâ, radiatim costatâ, epidermide fuscâ squamoso-setosâ obtectâ; margine cardinali utrâque, præcipuè posticè, auriculatâ: long.* 1·2, *lat.* 0·6, *alt.* 0·65 *poll.*

Hab. ad Sanctam Elenam.

Found, at a depth of ten fathoms, in a muddy bottom.—G. B. S.

Arca biangulata. *Arca testâ oblongâ, ventricosâ, albâ, radiatim costatâ, epidermide fuscâ setosâ indutâ; margine dorsali anticè acutè, posticè obtusè angulatâ; latere antico breviore, altiore, postico subacuminato, margine laterali declivi; areâ ligamenti elongatâ, anticè latiore, planâ: long.* 2·, *lat.* 1·2, *alt.* 1·3 *poll.*

Hab. ad littora Columbiæ Occidentalis. (Atacamas.)

A single specimen was dredged at a depth of seven fathoms.—G. B. S.

Arca multicostata. *Arca testâ ovato-rhombeâ, albâ, radiatim multicostatâ, epidermide fuscâ subvelutinâ indutâ; latere antico supernè angulato, subtùs rotundato, postico supernè angulato; margine laterali declivi; carinâ rotundatâ ex umbone ad marginem inferam posticam decurrente; costis rotundatis, minutissimè decussatis, anticis subgranosis; sulcis rotundatis; areâ ligamenti latiusculâ: long.* 2·8, *lat.* 2·1, *alt.* 2·4 *poll.*

Hab. ad oras Americæ Centralis.

Dredged from a depth of twelve fathoms in the Gulf of Tehuantepec.—G. B. S.

§ § Inæquivalves.

Arca obesa. *Arca testâ ovatâ, ventricosâ, albâ, radiatim costatâ, epidermide fuscâ squamosâ obtectâ; costis numerosis, confertis, planulatis, lævibus; latere antico breviore, postico subangulato; areâ cardinali breviusculâ, angustâ: long.* 1·55, *lat.* 1·1, *alt.* 1·1 *poll.*

Hab. in Columbiâ Occidentali.

A few specimens only were dredged, in seven fathoms, at Atacamas.—G. B. S.

Arca labiata. *Arca testâ brevi, quadrato-globosâ, albâ, radiatim costatâ; costis anticis, valvæ majoris præcipuè, rugulosis, posticis latioribus lævibus, omnibus planulatis; latere antico breviore, rotundato, postico longiore, subangulato; areâ ligamenti latâ, rhomboideâ; epidermide fuscâ: long.* 1·2, *lat.* 1·, *alt.* 1·1 *poll.*

Hab. ad Real Llejos et ad Tumbez.

Dredged among sandy mud at a depth of seven fathoms. The *epidermis* at the posterior edges of the ribs is setose.—G. B. S.

Arca labiosa. *Arca testâ brevi, quadrato-globosâ, albicante, radiatim costatâ, costis anticis, valvæ majoris præcipuè, granosis, posticis lævibus; latere antico breviore, supernè angulato, infrà rotundato; postico longiore subangulato; areâ ligamenti angustâ; epidermide tenui, fuscâ: long.* 1·45, *lat.* 0·9, *alt.* 1·15 *poll.*

Hab. ad Tumbez, Peruviæ.

A few specimens only were dredged, in soft mud, at a depth of seven fathoms.—G. B. S.

ARCA QUADRILATERA. *Arca testâ quadrangulari, ventricosâ, albicante, radiatim costatâ, epidermide olivaceâ indutâ; lateribus supernè angulatis, antico suprà rotundato, postico infrà obtusè angulato; costis rotundatis; areâ ligamenti angustâ: long.* 1·, *lat.* 0·7, *alt.* 0·85 *poll.*
Hab. ad Real Llejos.
Dredged in sandy mud at eight fathoms depth.—G. B. S.

ARCA BREVIFRONS. *Arca testâ oblongâ, radiatim costatâ, albâ, epidermide fuscâ, interstitiorum setosâ, indutâ; latere antico brevi, postico latiore, longiusculo; margine dorsali posticè angulatâ; costis planulatis; areâ ligamenti obsoletâ: long.* 1·25, *lat.* 0·6, *alt.* 0·75 *poll.*
Hab. ad Tumbez, Peruviæ.
Dredged among soft mud at seven fathoms depth.—G. B. S.

ARCA CARDIIFORMIS. *Arca testâ subovali, ventricosâ, albidâ, radiatim costatâ, costis anticis rugulosis, cæteris lævibus, interstitiis valvæ majoris angustissimis, minoris latiusculis; latere antico rotundato, postico subtùs angulato; margine laterali declivi; areâ ligamenti parvâ, subæquali: long.* 2·, *lat.* 1·5, *alt.* 1·7 *poll.*
Hab. in Sinu Californiensi.
Found on the sands at San Blas. At first glance it has the appearance of, and might easily be mistaken for, a *common Cockle*.—G. B. S.

At the request of the Chairman, Mr. Martin read the following notes of his dissection of a *slender Loris, Loris gracilis*, Geoff., which had recently died at the Society's Gardens. It was presented by Captain Faith.

"The animal was a female, and its admeasurements were as follow:

"Total length of the body, 8¾ inches; of the arm, 5 (the *humerus* measuring 2, the fore-arm 3 inches); of the inferior extremities, 5½ inches (exclusive of the foot; the *femur* being 2½, and the leg 3 inches long).

"On laying open the *abdomen*, the liver, the stomach, a portion of spleen, and the convolutions of the small intestines were presented to view. The liver was tripartite; the left lobe was single; the middle lobe divided into two portions, on the right of which, in a *sulcus*, on the under or convex side, was situated the gall-bladder; and the right lobe was also divided, the *lobulus Spigelii* existing as usual. The spleen was of a dark colour, long and narrow, being barely half an inch broad, but 2 inches in length, and attached pretty closely to the convex portion of the *cardium*. The gall-bladder was oval, its duct entering half an inch below the *pylorus*; the length of the duct was nearly half an inch. The pancreatic duct terminated with it, that gland being long and slender, running an inch and a half along the curve of the *duodenum*, to which, beginning at the *pylorus*, it was closely attached.

"The stomach was simple, the cardiac portion half an inch beyond the entrance of the *œsophagus*. The intestines were slender, and exhibited very great difference of circumference between their large and small portions. The length of the small was 21 inches, of the large 8 inches. The distance from the cardiac to the pyloric opening, following the small curve of the stomach, was little more than half an inch. The greater curve of the stomach measured 3¼ inches. The *cæcum*, of considerable size, extended 3¼ inches beyond the entrance of the *ileum*.

"The kidneys were large, and almost oval; the cortical substance being thin, but very distinct; the right was situated somewhat the highest. The urinary *tubuli* entered the *pelvis* of the kidney by one large conical *papilla*. The bladder was small, and oval, the ureters entering half-way between the *fundus* and the neck.

"Between the *anus* and the external parts of generation a distance of 3 or 4 lines intervened; the *clitoris*, projecting like a *penis*, depended from the inferior edge of the *vagina*, and at its extremity the *urethra* opened, the length of that canal being an inch and a half; the *urethra* passed down the *clitoris*, as in the *penis* of the male. The *uterus* was very small and bifid; the *vagina* was 2 inches long, the *urethra* running attached to its surface. The bones of the *pubes* were not in contact at the *symphysis* for nearly a quarter of an inch.

"The chest was next opened.

"The lungs had two lobes on the left, and three on the right side, with a small posterior one on the posterior *mediastinum*. The heart itself presented nothing remarkable; its right cavities were, however, gorged with blood.

"The tongue, an inch and a half long, tapering and smooth, exhibited three *papillæ* on its basal portion, disposed so as to form the three points of a triangle.

"The *epiglottis*, arising from the root of the tongue, had its edges curled forwards, so as to form three parts of a cylinder, the tip or extremity being bifid. Beneath the *epiglottis* the *rima* opened, rather widely at its commencement, but narrowing to a mere slit.

"The *aorta* gave off at its arch three branches, viz. the *arteria innominata*, whence the right carotid and right subclavian sprung; the *left carotid*; and the *left subclavian*.

"With reference to the distribution of the arteries in the limbs of slow-moving animals, as discovered by Sir A. Carlisle, the course of the subclavian and of the femoral arteries was examined, with a view to observe the subdivisions noticed in the *slow Lemur* and the *Sloth* by that eminent anatomist. Both were injected with mercury, but the femoral most successfully. This latter artery, on leaving the *aorta*, subdivided into a number of tubes, running a parallel course in contact, intertwined together, and communicating freely with each other. This lengthened *plexus* of vessels, giving off the *profunda* in a single large trunk, was found to run the usual course down the thigh, the distinct tubes uniting more and more into one, until it became popliteal, and then divided as usual into the anterior and posterior tibial arteries. During the course of this *congeries*, several very small arteries were given off to the muscles;—it is to be observed, that, divided as it is, this femoral *plexus* bore a great relative proportion to the bulk of limb it was destined to serve. The subclavian artery exhibited precisely the same character as the femoral. This *plexus*, as it passed over the first rib, sent off several minute arteries to the adjacent muscles, and entered the *axilla*, where it gave off similar *radii*, and continued its course, decreasing to the elbow; but the injection not having well succeeded in this part, it was impossible to trace the character of its subdivisions. As was the case with the femoral *plexus*, the present bore a large relative volume to that of the limb: indeed, it strongly impressed the observer with the idea, that, however impeded by this arrangement of vessels, an unusual quantity of blood would be habitually conveyed to the extremities. This arterial structure may perhaps be more connected with tenacity of grasp, and endurance of muscular contraction, than with mere slowness of motion. The present animal, although on its first arrival very torpid and inanimate, was, when warmed before the fire and secluded from a direct light, very lively, and as active as its cage permitted, becoming, however, dull and inanimate the moment it was removed from the influence of the exciting and genial temperature.

"The results of this dissection agree generally with those of Daubenton and Sir A. Carlisle, as regards the several particulars observed by them.

"The disease of which the animal died was *peritonitis*; the peritoneal membrane having a universal and deep blush of inflammation."

The specimen of the *Apteryx Australis*, Shaw, which was figured in the 'Naturalist's Miscellany,' plates 1057 and 1058, was exhibited. This specimen, hitherto unique, forms part of the collection of the President, Lord Stanley, by whom it was purchased at the sale of Dr. Shaw's effects. Doubts having been expressed by some continental writers as to the existence of such a bird, it was communicated by His Lordship for exhibition; the materials with which it was stuffed having been previously removed from it by his directions, so as to permit of the skin being closely examined.

Mr. Yarrell called the attention of the Meeting to its several parts in detail, which he described fully, with reference to the illustration of a paper "On the *Apteryx Australis*, Shaw." He dwelt particularly on the singular combination of characters presented by this bird, which render it so remarkable and so highly interesting to the ornithologist. With the strong feet and claws of a *Rasorial* bird, it has *tarsi* so short as to incapacitate it from running with speed, a movement apparently required as a compensation for the absence of the power of flight occasioned by its merely rudimentary wings. The absence of any tendency to palmation between the toes equally unfits it for progression in the water. Hence must result a peculiarity of habits, respecting which it is much to be regretted that we are at present entirely without information. Its long and slender bill, resembling in form that of an *Ibis* but somewhat more straight, is singular on account of neither of the mandibles presenting any concavity on their inner or opposed surface, except close to the base: it is scarcely less extraordinary in the position of its nostrils, which are seated close to the *apex*, and through which a bristle may be passed freely along the whole length of the beak, 6¾ inches, to the head.

The position of the nostrils, the short *tarsi*, and the decidedly rasorial character of the toes and claws, indicate the necessity of its food being obtained on dry land; and Col. Sykes having found beetles, grasshoppers, seeds, and vegetable fibres, in the stomachs of some of the Indian species of *Ibis*, Mr. Yarrell conjectures that the food of the *Apteryx* is probably similar.

Mr. Yarrell concluded by stating his impression that a second representation of the bird might be acceptable to zoologists, the figures in the 'Naturalist's Miscellany,' besides being but little known, being deficient in two or three particulars which he enumerated.

March 12, 1833.

The President, Lord Stanley, in the Chair.

A letter was read, addressed to the Vice-Secretary by M. Geoffroy-Saint-Hilaire, For. Memb. Z. S., and dated Paris, March 5, 1833. It acknowledges the receipt of the copy of the letter of Lieut. the Honourable Lauderdale Maule to Dr. Weatherhead respecting the *Ornithorhynchus*, and states that the writer has proposed a system calculated to put an end to the controversy respecting these animals. This system is contained in a "Memoir on the Abdominal Glands of the *Ornithorhynchus*, falsely presumed to be mammary, but which secrete, not milk, but mucus, destined for the first nutriment of the young, when newly hatched," published in the 'Gazette Medicale,' under the date of Feb. 18th. A copy of the Memoir was laid on the table, and an abstract of it was read.

M. Geoffroy-Saint-Hilaire translates the whole of Lieut. Maule's letter, and quotes also Mr. Owen's observations on the Mammary glands of *Echidna*, from the Proceedings of the Committee of Science and Correspondence. He then enters into some details on the history of our knowledge of the *Monotremata*, and on the various opinions which have been held respecting their mode of generation, and the nutrition of their young. Recurring to the very curious observation of Lieut. Maule, he admits the effusion of a fluid of a milky appearance, but he doubts that this fluid was actually milk. "To arrive so rapidly at this decision," he proceeds, "many impossibilities must have been forgotten. You have not the function, nor the result of the function which characterizes the *Mammalia*, if the organs that produce it are truly wanting. Now this is what I think I can demonstrate; and what I undertake to do in the following remarks.

"For this purpose I seek for analogous facts; and they have long since been furnished to me by the *Shrews*. There are on each side of the bodies of these animals two kinds of glands arranged parallel to each other. 1st, Internally, conglobate and truly lactiferous glands, of the known structure: 2ndly, Externally, an apparatus formed of *cæca*, furnished with some membranous and diaphragmatic *fræna*, and with many cellulosities. This apparatus, in the young state and during the inactivity of the sexual organ, consists only of a longitudinal projection without distinct characters; but during the season of sexual excitement, this projection becomes enlarged and is visibly surmounted on its internal surface by a multitude of small parallel *cæca*, disseminated over and attached to the glandular body, like the bristles upon a brush. These *cæca* open on the projection made by the gland, which on its tegumentary surface has but a single excretory orifice. The secretion consists of a *mucus* possessing a very powerful odour.

*   *   *   *   *   *

"The epigastric artery is divided into two principal branches; one passing towards the median line to supply the mammary glands; the other ramifying externally and performing the same function with regard to the odoriferous glands. The same structure exactly is presented by the ventral glands of the *Ornithorhynchus*, two characters excepted, which do not militate against the determination and analogy assigned to them: viz. a much more extensive development, and two secretory orifices instead of one, as in the *Shrews*. I explain this difference by the atrophy and entire suppression of the internal epigastric branch. This branch being annihilated, there is no formative vessel, and consequently no apparatus produced,—no mammary gland; but, on the other hand, the whole arterial alimentation passing more excentrically by means of the single terminal branch, the apparatus to which this branch is distributed is proportionally enlarged. This shows why and how the odoriferous glands have reached, in the *Monotremata*, their maximum of development. Where the apparatus becomes more considerable, the function is so much the more powerful, and the mucus secreted must in fact exist in such quantity in the *Monotremata*, that its effusion may become a fact susceptible of observation.

"I should not be surprised, if this mucus, more abundant and more substantial in the *Monotremata*, became the nutriment of the young after their hatching. The *Monotremata* would act, in this respect, like some aquatic birds which conduct their young after hatching to the water, and assist them in their substantation. The maternal instinct would lead the female *Ornithorhynchus* to effect the contraction of the gland, which is possible by the efforts of the *panniculus carnosus* and the great oblique muscle, between the fibres of which the gland is seated, and thus to procure for the young, at several periods of the day, by way of nutriment, an abundant supply of mucus. If this education is carried on in the water, where we know, by the history of the generation of frogs and the nutrition of their tadpoles, that the mucus combines with the ambient medium, becomes thick, and supplies an excellent nutriment for the early age of these reptiles, we shall understand the utility of the ventral glands of the *Ornithorhynchus*, as furnishing a source of nutriment for the young of these animals,—for young *ovipara* newly hatched. When we meet with such curious organic conditions, we do not attempt, by a truly retrograde march, to throw back well averred differential facts, decidedly acquired to science, by means of a forced assimilation, among other facts peculiar to the class of *Mammalia*; but on the contrary we are under the necessity of placing the *Monotremata* further within the limits of oviparous animals.

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"At the other extremity of the scale of beings, where the fishes are placed, we meet with a gland secreting mucus, extending along the sides from the head to the tail. Ascending the scale, we see it separate into fractions; some *Reptiles*, and among others the *Salamanders*, have it large and forming a continuous band, as in *Fishes*: we have said in what state it is found in the *Monotremata*."

In a postscript, dated February 19th, M. Geoffroy states that at a Meeting of the Academie des Sciences on the previous day, M. de

Blainville had read a paper, in which he maintained his former opinions on the subject of the *Monotremata*, and supported the views of Mr. Owen. He states that some contradictions and physiological impossibilities contained in it had been noticed by MM. Duméril and Serres, in the course of the discussion, but does not enter into any details.

The reading having been concluded of the abstract of the views proposed by M. Geoffroy-Saint-Hilaire in the memoir submitted, Mr. Owen addressed the Society on its subject. The following is an outline of his observations.

When the glands in question were first detected by M. Meckel, that eminent anatomist at once regarded them as mammary. M. Geoffroy-Saint-Hilaire objected to this mode of viewing them, that their structure is not conglomerate, like that of mammary glands, but lobed and consisting of numerous *cæca*, resembling the structure which he has described as existing in the odoriferous glands which surround the *mammæ* of the *Shrews*; hence he concluded that their function is similar to that of the corresponding organs, as he considered them, in these little animals, namely, to secrete an odorous substance for the purpose of attracting the other sex in the season of heat. M. von Baer subsequently proved that it is incorrect to assume that a mammary gland must necessarily be conglomerate, by showing that these organs in the *Cetacea* consisted of simple *cæca*, a structure even less complicated than that demonstrated in *Ornithorhynchus* at a later period, by Mr. Owen. During his investigation of the structure of these glands Mr. Owen proved, by comparing their condition with the state of the sexual organs in several individuals which he examined, that they correspond in the phases of their development with the true mammary glands, their greatest size being attained when the ovaries appear to have recently parted with their contents. The fact of their development being at its maximum at about the time of the birth of the young, evidently indicating the connexion of their function with this period, M. Geoffroy-Saint-Hilaire at first conjectured that they might secrete the earthy matter of the egg-shell, with which he conceives the young to be provided when brought into the world; but this may be regarded as improbable, the tubes, (upwards of a hundred and fifty in number and opening by as many orifices,) which convey the secretions from the glands being so very slender and elongated as to be evidently adapted for carrying fluids. M. Geoffroy-Saint-Hilaire's subsequent and most recent opinion is that they secrete mucus, which being squeezed out by the mother in the water, becomes thereby thickened, and adapted for the aliment of the young; but Mr. Owen remarked that as he had shown that similar glands exist in *Echidna,* animals inhabiting sandy places, and unfitted for going into the water, such cannot be their use in *Echidna* at least, and it may therefore be concluded that such is not their use in *Ornithorhynchus*.

Mr. Owen added, that he had purposely limited his observations on the present occasion to the theories propounded by M. Geoffroy-Saint-Hilaire respecting the uses of the abdominal glands of *Orni-*

thorhynchus. Lest, however, it should be inferred from his silence as to the other views advanced by that distinguished zoologist in the two communications recently laid before the Society, that he coincided in them, he thought it necessary to remark that he was by no means disposed to admit their general correctness.

Extracts were read from a letter addressed to the Secretary of the Society, by Charles Telfair, Esq., Corr. Memb. Z.S., and dated Port Louis (Mauritius), November 8th, 1832. It accompanied some skins of *Mammalia* and *Birds*, and a collection of *Fishes*, *Mollusca*, and *Crustacea*, presented to the Society by its writer. It also announces it as probable that specimens of the *Tendraka* and *Sokina* of Madagascar, will shortly be obtained for the Society. Mr. Telfair has recently had opportunities of making some researches about the buried bones of the *Dronte* or *Dodo*, found in the island of Rodriguez. The result of these researches he communicates, and incloses letters addressed to him by Col. Dawkins, Military Secretary to the Governor of the Mauritius, and by M. Eudes, resident at Rodriguez.

Col. Dawkins, in a recent visit to Rodriguez, conversed with every person whom he met respecting the *Dodo*, and became convinced that the bird does not exist there. The general statement was that no bird is to be found there except the *Guinea-fowl* and *Parrot*. From one person, however, he learned the existence of another bird, which was called *Oiseau-bœuf*, a name derived from its voice, which resembles that of a cow. From the description given of it by his informant, Col. Dawkins at first believed that this bird was really the *Dodo*; but on obtaining a specimen of it, it proved to be a *Gannet*. It is found only in the most secluded parts of the island.

Col. Dawkins visited the caverns in which bones have been dug up, and dug in several places, but found only small pieces of bone. A beautiful rich soil forms the ground-work of them, which is from six to eight feet deep, and contains no pebbles. No animal of any description inhabits these caves, not even bats.

M. Eudes succeeded in digging up in the large cavern various bones, including some of a large kind of bird, which no longer exists in the island: these he forwarded to Mr. Telfair, by whom they were presented to the Society. The only part of the cavern in which they were found was at the entrance, where the darkness begins; the little attention usually paid to this part by visitors, may be the reason why they have not been previously found. Those near the surface were the least injured, and they occur to the depth of three feet, but nowhere in considerable quantity; whence M. Eudes conjectures that the bird was at all times rare, or at least uncommon. A bird of so large a size as that indicated by the bones has never been seen by M. Gory, who has resided forty years on the island.

M. Eudes adds, that the Dutch who first landed at Rodriguez left cats there to destroy the rats which annoyed them: these cats have since become very numerous, and prove highly destructive to poultry; and he suggests it as probable that they may have destroyed the large kind of bird to which the bones belong, by devouring the young ones as soon as they were hatched,—a destruction which may have been completed long before the island was inhabited.

The bones procured by M. Eudes for Mr. Telfair have been presented by that gentleman to the Society. They were laid on the table. They include, with numerous bones of the extremities of one or more large species of *Tortoise*, several bones of the hinder extremity of a large bird, and the head of a *humerus*. With reference to the metatarsal bone of the bird, which was long and strong, Dr. Grant pointed out that it possessed articulating surfaces for four toes, three directed forwards and one backwards, as in the foot of the *Dodo* preserved in the British Museum, to which it was also proportioned in its magnitude and form.

The *Gannet*, designated in Rodrigues as the *Oiseau-bœuf*, was also exhibited. It was apparently referrible to the *lesser Gannet* of Dr. Latham, the *Sula candida*, Briss., and *Pelecanus Piscator*, Linn.

The *Fishes* presented by Mr. Telfair were exhibited. They include specimens of about fifty species, among which the following were pointed out by Mr. Bennett as apparently hitherto undescribed.

APOGON VITTIGER. *Ap. brunnescenti-rufescens; vittá laterum mediá rectá anticè productá rostrumque cingente, maculáque parvá rotundatá ad basin pinnæ caudalis, nigris.*

D. 7, $\frac{1}{8}$. A. $\frac{1}{7}$.

GOBIUS SEMICINCTUS. *Gob. oculis lateralibus: pinná caudali subrotundatá: brunneus, infrà pallidior, semicingulis sex ventralibus argenteis nigro-marginatis; genis operculisque cæruleo-guttatis lituratisque; guttá nigrá ad basin pinnæ caudalis; pinná anali ad basin cæruleo punctatá.*

D. 6, 16. A. 14. C. 17. P. 18. V. 6—6.

CLUPEA MAURITIANA. *Clup. pinná dorsali vix pone æquilibrium positá; ventralibus subdorsalis medio; anali subelongatá: dorso vittáque supra lineam lateralem iridescenti-plumbeis, ventre flavicante-argenteo.*

D. 19. A. 19. V. 9. P. 16.

MURÆNA MOLENDINARIS. *Mur. dentibus rotundatis; maxillæ superioris utrinque uniseriatis, vomerinis numerosissimis confertis irregulariter* 10—12-*seriatis; maxillæ inferioris utrinque* 5—6-*seriatis: corpore brunnescenti-nigro, lineis albidis ultra centenis circumdato.*

A *Murænâ Zebrâ*, Shaw, satis differt numero et ordinatione dentium: cæterum colore picturâque simillima, lineis tamen albidis circularibus magis numerosis. Longitudo circiter 4-pedalis.

OPHISURUS CROCODILINUS. *Oph. pinnis pectoralibus parvis: maxillá inferiore longiore: dentibus acutis; maxillæ superioris parvis subapproximatis, palatinis majoribus distantibus, vomerinis* 4—5 *maximis; maxillæ inferioris utrinque* 8—10, *intermediis distantibus maximis: oculis rhinario proximis, cristá osseá posticè supereminente: suprà fusco-cinerascens, infrà pallidior; pinnis pallidis; lineá laterali serie stigmatum nigrorum distinctá.*

At the request of the President, Mr. William Thompson of Belfast exhibited a specimen of a *Tern* shot by him in June last on one of the three Copeland Islands, which are situated a few miles off the north-east coast of the county Down, Ireland. Mr. Thompson stated that the bird was evidently identical with those described as the young of the *Arctic Tern, Sterna Arctica,* Temm., in the Appendix to Capt. Parry's Voyage in 1819-20, page 203. In a detailed description of the specimen, which was read, Mr. Thompson pointed out various differences of proportions and colouring between it and the adult *Arctic Tern,* specimens of which, as well as of *Sterna Hirundo* and *Sterna Dougalii,* were shot by him on the same day, thus affording opportunity for comparison of these several species in a recent state and at precisely the same season.

Mr. Thompson availed himself of the opportunity to exhibit also specimens of the *black-headed Gull, Larus capistratus,* Temm., and of the *Sandwich Tern, Sterna Cantiana,* Temm., which were shot in the neighbourhood of Belfast. It is believed that no previous instance of the occurrence of these birds in Ireland has been recorded.

Specimens were exhibited of the *woolly* and *hairy Penguins* of Dr. Latham. They form part of the collection of the President, by whom they were communicated for exhibition. Mr. Yarrell briefly described them.

"*Woolly Penguin* of Dr. Latham's 'General History of Birds,' vol. x. page 392. Length of the beak, 2¾ inches; from the point to the gape, 3¾ inches; length of the beak and head, 6½ inches; from the top of the head to the end of the *tarsus*, 31 inches; length of the foot and claw, 6¾ inches; length of the wing, 12¾ inches; girth of the body, 34 inches; beak black towards the point, slightly curved; basal third of the upper mandible, dusky brown; basal half of the lower mandible, orange.

"The terms *woolly* and *hairy Penguins* appear somewhat inappropriate, the covering of both these birds being only different modifications of those tufts of down which in young birds precede the first true feather. The colour of the covering in this specimen is a uniform light brown; the tail is cuneiform, composed of numerous dark-coloured feathers, narrow and bristly, the longest of which are 3 inches; the feet and part of the toes yellow; the ends of the toes, webs and claws, black. The fourth toe of each foot, in both these birds, appears to have been overlooked by the original describer: it is small, articulated to the inner side of each inner toe, and the birds may consequently be considered as having four toes, all pointing forward. From the length of the wing in this specimen, and the orange colour of the base of the lower mandible, this bird is probably the young of the *Patagonian Penguin.*

"*Hairy Penguin* of Dr. Latham's work before quoted, the same volume and page. Length of the beak, 2¼ inches; from the point to the gape, 3¼ inches; length of the beak and head, 5 inches; from the crown of the head to the end of the *tarsus*, 27¼ inches; length of the foot and claw, 4¾ inches; length of the wing 10¼ inches; girth of the body, 23 inches. Beak black, slender and slightly curved towards the point; covering in this bird uniform dark brown; right wing wanting: no appearance of tail-feathers; toes vermilion, webs orange, claws brown. It is probably the young of a large-sized *Penguin*, of which several species are described by authors as having red legs and feet. All that is known of this specimen is, that it was brought to England by the master of a South Sea Whaler, and formed part of an exhibition of subjects in natural history."

The exhibition was resumed of the new species of *Shells* collected by Mr. Cuming on the western coast of South America and among the islands of the South Pacific Ocean. They were accompanied by characters from the pen of Mr. G. B. Sowerby.

CUMINGIA, NOV. GEN.

Testa bivalvis, inæquilateralis, æquivalvis, latere antico rotundato, postico subacuminato; dentibus, cardinali, in utrâque valvâ, unico, parvo, antico, lateralibus in alterâ valvâ ad utrumque latus uno, valido, in alterâ nullo; ligamento interno foveolæ sub-cochleariformi affixo; impressionibus muscularibus duabus, lateralibus, distantibus, anticâ irregulari, oblongâ, posticâ subrotundatâ; impressione musculari pallii sinu maximo.

An interesting new genus of *Bivalves*, which should be placed near to *Amphidesma*. It is remarkable for the dissimilarity of the hinge of the two valves, one having a strong lateral tooth on each side of the ligament, and the other being entirely destitute of lateral teeth. Having only met with a single small West Indian species, I did not venture to consider this genus established until Mr. Cuming showed me several species in his rich collection of South American and Pacific shells, one of which is sufficiently large to show the characters distinctly.—G. B. S.

CUMINGIA MUTICA. *Cum. testâ ovatâ, minutissimè decussatâ, anticè rotundatâ, posticè acuminatiusculâ: latere postico breviusculo, margine dorsali declivi: long.* 1·2, *lat.* 0·5, *alt.* 0·85 *poll.*

Hab. prope littora Maris Pacifici.

This species has been obtained at the following places: at Conception in seven fathoms, sand and mud; at Iquiqui in nine fathoms, gravel and mud; at Payta in hard clay at low water; and at Muerte. —G. B. S.

CUMINGIA LAMELLOSA. *Cum. testâ ovatâ, concentricè lamellosâ, latere antico rotundato, postico subacuminato: lamellis distantibus: long.* 0·7, *lat.* 0·35, *alt.* 0·55 *poll.*

Hab. prope littora Oceani Pacifici.

Found at Payta in hard clay at low water; and at Panama in deep water.—G. B. S.

CUMINGIA COARCTATA. *Cum. testâ ovali, concentricè lamellosâ;*

latere antico altiore, rotundato; postico subacuminato, infrà coarctato, margine dorsali declivi; lamellis confertis: long. 0·6, *lat.* 0·3, *alt.* 0·4 *poll.*

Hab. ad Sinum Caraccensem.

Dredged from a sandy muddy bottom in seven fathoms water in the Bay of Caraccas.—G. B. S.

CUMINGIA TRIGONULARIS. *Cum. testá orbiculato-subtrigoná, concentricè lamellosá; latere antico rotundato, postico acuminato, margine dorsali declivi: long.* 0·8, *lat.* 0·4, *alt.* 0·7 *poll.*

Hab. ad Sanctam Elenam.

Found among stones in deep water.—G. B. S.

GENUS CORBULA.

CORBULA NUCIFORMIS. *Corb. testá ovatá, crassá, ventricosá, anticè rotundatá, posticè rostratá, obtusá; margine ventrali valvæ sinistralis posticè coarctatá, transversim sulcatá: long.* 0·55, *lat.* 0·35, *alt.* 0·3 *poll.*

Hab. in Americâ Centrali.

Found at a depth of six fathoms in sandy mud at Real Llejos. The same species is also found in a fossil state near Guayaquil.—G. B. S.

CORBULA BICARINATA. *Corb. testá ovatá, depressiusculá, subæquilaterali, anticè paullò longiore, posticè bicarinatá; carinis ex umbone ad marginem posticam ventralem decurrente: long.* 0·45, *lat.* 0·3, *alt.* 0·35 *poll.*

Hab. ad littora Columbiæ Occidentalis.

Found in sandy mud at from seven to seventeen fathoms at Panama, Real Llejos, Caraccas and St. Elena.—G. B. S.

CORBULA BIRADIATA. *Corb. testá ovato-oblongá, longitudinaliter striatá, pallidá; margine dorsali posticá subcarinatá, rufá, anticá breviore, rufo maculatá; radiis binis intermediis albis: long.* 0·6, *lat.* 0·3, *alt.* 0·4 *poll.*

Hab. ad Chiriqui et ad sinum Caraccensem.

Found in mud and sand in from three to six fathoms at Chiriqui, and in seven fathoms in the Bay of Caraccas. The species varies much in thickness and in the colour of the inside, where some specimens are of a dark blood red colour.—G. B. S.

CORBULA NASUTA. *Corb. testá ovatá, gibbosá, anticè altiore, rotundatá, posticè rostratá, acuminatá, valvis subcarinatis: long.* 0·7, *lat.* 0·35, *alt.* 0·35 *poll.*

Hab. ad Xipixapi.

Found in sandy mud at a depth of ten fathoms. Some small specimens which I suppose to be the young of this species were found in the gulf of Nocoiyo.—G. B. S.

CORBULA OVULATA. *Corb. testá ovatá, albicante, interdum roseo tinctá, anticè subproducto-rotundatá, posticè subrostratá; extùs longitudinaliter sulcatá: long.* 1·, *lat.* 0·5, *alt.* 0·55 *poll.*

Hab. ad littora Americæ Meridionalis.

Found in sandy mud at various depths, from seven to seventeen fathoms, at Xipixapi, and in the Bays of Montijo and Caraccas. Detached valves of a beautiful pink colour were picked up on the sands at Real Llejos and Mazatlan.—G. B. S.

CORBULA RADIATA. *Corb. testá subtrapeziformi, albidá, prope marginem ventralem sanguineo radiatá; latere antico brevi, postico longiore, bicarinato; intùs sanguineá: long.* 0·35, *lat.* 0·17, *alt.* 0·25 *poll.*

Hab. ad Acapulcam.

A single specimen was picked up on the sands.—G. B. S.

CORBULA TENUIS. *Corb. testá oblongá, albicante, tenui; latere antico supernè declivi, anticè rotundato; latere postico longiore, bicarinato, posticè biangulato; margine posticá declivi; umbonibus subincurvis; margine dorsali posticá subexcavatá: long.* 0·9, *lat.* 0·4, *alt.* 0·5 *poll.*

Hab. in Americâ Centrali.

One specimen was dredged among sandy mud at a depth of twelve fathoms in the Bay of Montijo.—G. B. S.

Genus BULINUS.

BULINUS CHILENSIS. *Bul. testá ovali, cinerascenti-fulvá, albido variegatá; anfractibus quatuor, minutissimè rugulosis, ultimo maximo; suturá crenulatá; aperturá ellipticá; peritremate reflexo, albente: long.* 1·4, *lat.* 0·75 *poll.*

Conchological Illustrations, by G. B. Sowerby, jun.

Hab. ad Coquimbo, sub lapidibus.—G. B. S.

BULINUS PUNCTULIFER. *Bul. testá ovato-oblongá, subacuminatá, albidá, minutissimè rugulosá, epidermide tenuissimá flavicante indutá; punctulis nigricantibus, seriatim dispositis, sparsim ornatá; anfractibus quinque, ventricosiusculis, suturá sub-impressá; aperturá ellipticá, supernè acuminatá, peritremate tenui: long.* 1·5, *lat.* 0·75 *poll.*

Hab. in Chili, sub lapidibus.

From the Questa Prado.—G. B. S.

BULINUS RUGIFERUS. *Bul. testá turrito-pyramidali, brunneá; anfractibus octo, longitudinaliter rugulosis; suturá distinctá; aperturá subovali; labio externo tenui, irregulari; umbilico parvo: long.* 0·5, *lat.* 0.2 *poll.*

Hab. ad Insulam Jacobi, inter Gallapagos Insulas.

Found under scoriæ.—G. B. S.

BULINUS PRUINOSUS. *Bul. testá ovato-oblongá, tenui, corneá, albo variá; anfractibus quinque, ventricosis; suturá profundá; aperturá ellipticá, supernè acuminatá; umbilico parvo; labio tenui: long.* 0·55, *lat.* 0·3 *poll.*

Hab. in Peruviâ.

Found on dead leaves in the clefts of rocks in the mountains of Cobija.—G. B. S.

Bulinus Laurentii. *Bul. testâ ovato-pyramidali, tenui, albicante, transversim fusco fasciatâ; anfractibus quinque, lævibus, ventricosis, gradatim majoribus; suturâ distinctâ; aperturâ ferè circulari; umbilico mediocri; labio tenui: long.* 0·55, *lat.* 0·3 *poll.*

Hab. in Peruviâ.

Var. β. testâ omnino albicante.

Found on stones on the top of the mountain in the Island of San Lorenzo, Bay of Callao, Peru, about 2500 feet above the level of the sea.—G. B. S.

Bulinus unifasciatus. *Bul. testâ ovato-subpyramidali, tenui, pellucidâ, brunneâ, fasciâ unicâ albidâ; anfractibus* 5—6, *ventricosis, longitudinaliter striatis, nitidis; aperturâ ellipticâ, supernè acuminatâ; labio tenui; umbilico parvo: long.* 0·8, *lat.* 0·45 *poll.*

Hab. ad Insulas Gallapagos.

Found under detached pieces of lava on Charles's Island, one of the Gallapagos.—G. B. S.

Bulinus bilineatus. *Bul. testâ ovato-oblongâ, tenuiusculâ, pallescente, lineis duabus brunneis transversis, interstitio albo; anfractibus* 6—7, *lævibus, ventricosis, longitudinaliter striatis; suturâ distinctâ; aperturâ ovatâ; labio tenui; umbilico parvo: long.* 0·65, *lat.* 0·25 *poll.*

Hab. ad Sanctam Elenam et in Columbiâ Occidentali.

Variat coloribus saturatioribus vel pallidioribus.

Found under stones at St. Elena, and buried in the earth under bushes in the Island of Plata on the coast of West Columbia.—G. B. S.

Bulinus corneus. *Bul. testâ ovatâ, obtusâ, tenui, pellucidâ, corneâ; anfractibus* 5—6, *ventricosis, longitudinaliter striatis, lævibus; suturâ distinctâ; aperturâ ovatâ; labio tenui; umbilico mediocri: long.* 0·6, *lat.* 0·3 *poll.*

Hab. in Americâ Centrali.

Found under decayed grass at Real Llejos.—G. B. S.

Bulinus erythrostoma. *Bul. testâ ovato-subglobosâ, albâ; spirâ obtusâ, conicâ; anfractibus quinque, ventricosis, minutissimè granosis; aperturâ ellipticâ, intùs rubente; labio tenui; umbilico magno: long.* 0·8, *lat.* 0·6 *poll.*

Hab. apud Huasco, Chiliæ.

One young specimen is covered with longitudinal streaks of reddish brown; and one adult shell has its lip thickened, but not reflected. Found under bushes.—G. B. S.

Bulinus chrysalidiformis. *Bul. testâ ovato-oblongâ, medio ventricosiore, tenui, lævigatâ, albâ, suturâ labioque externo reflexo brunneis; anfractibus* 6—7, *rotundatis; aperturâ longiusculâ; umbilico minimo: long.* 2·9, *lat.* 1·1 *poll.*

Hab. in Americâ Meridionali.

Mr. Cuming brought a single specimen of this shell, of which he does not know the locality, it being a dead shell and not having been found by himself.—G. B. S.

At the request of the President, Mr. Gould exhibited a specimen of a *Toucan*, remarkable for the peculiar form of the feathers on the back part of the head and cheeks. They are without barbs towards their extremities, the shafts being widely expanded; those of the crown of the head are curled and horn-like, and, being of a jet black colour, bear some resemblance to fine ebony shavings; as they proceed along the neck they become straighter, narrower, and spatulate: the feathers of the cheeks have the latter form, and are straw-coloured slightly tipped with black. Mr. Gould proposed for it the name of

Pteroglossus ulocomus. *Pter. plumis capitis, genarum, nuchæque foliiferis, illius crispis nigris, harum spatulatis, genarum stramineis nigro apiculatis; cervice, dorso, pectorisque lateribus coccineis; alis, caudâ, femoribusque olivaceis; remigibus brunneis; gulâ, pectore, abdominis medio crissoque flavescentibus, pectoris plumis coccineo marginatis.*

Long. 18 unc.; *rostri* a rictu ad apicem mandibulæ superioris, 4; *alæ*, 5⅔; *caudæ*, 7½; *tarsi*, 2¼.

The beak is lengthened, and both mandibles are edged with thickly set white serratures; the upper has the *culmen* orange, bordered by a narrow longitudinal stripe of dull blue extending nearly to the tip, below which the sides of the mandible are fine orange red; a white line surrounds the apertures of the nostrils; the under mandible is straw-coloured, becoming orange at the tip; a narrow band of rich chestnut encircles both mandibles at their base. The bare space surrounding the eyes is of a blueish lead colour, as are also the *tarsi* and toes.

March 26, 1833.

Lieut.-Col. Sykes in the Chair.

Specimens were exhibited of numerous *Mammalia* recently obtained by the Society from that part of California which adjoins to Mexico. They comprehended several species hitherto apparently undescribed, to which the attention of the Meeting was particularly called by Mr. Bennett.

MEPHITIS NASUTA. *Meph. naso prominente, rhinario supernè producto; vellere denso, pilis elongatis, rigidiusculis, setaceis; plantis omninò nudis.*

Long. *corporis* cum capite, 16½ unc.; *caudæ*, 5½; *caudæ* cum pilis, 9½; *pedis postici*, 2¾.

By its robust form; the shortness and strength of its limbs; the greater production of its nose; the denseness, firmness, and resistance of its strong hairs, and the entire nakedness of its soles, this animal differs from the *Common Skunk* of America. In the dried skin exhibited the nose extends an inch beyond the line of the upper incisors, a hairy space of half an inch in width intervening between the upper lip and the soft muzzle. On its upper surface the muzzle is produced backwards seven eighths of an inch in an elliptical form. The fur of the body is composed of an under coat of crisped fine hairs, and of an outer coat of strong, somewhat rigid hairs, which, however, have little of harshness, although they offer to the touch a marked difference in the resistance they oppose to pressure, as compared with the equally long but silky and soft hairs of the *Common Skunk*. The soft feel exists in two specimens, apparently referrible to the latter, which are contained in the collection, and the difference in the quality of the fur can therefore scarcely be attributed to locality. This difference is, moreover, combined with characters of form, especially about the nose, which authorize the consideration of the *long-nosed Skunk* as a distinct species.

The colouring, which in the genus *Mephitis* is evidently but little fitted to afford characters on which reliance can be placed, consists, in the individual exhibited, of a single broad white band, extending from behind the eyes along the middle of the back, where it is more dilated, and passing continuously to the tail, the whole of which it occupies: with this exception the entire fur is black. The claws, remarkably strong on the anterior feet, are, as usual, horn-coloured.

The hinder *tarsi* of the *Meph. nasuta* are destitute of hair on their under surface, and the nakedness extends even beyond the heel. In one of the specimens before alluded to, the hinder third is slightly, and in the other densely, hairy. These may, perhaps, help to furnish specific characters, but without further and more extensive observation

Mr. Bennett hesitated in having recourse to them, or to the comparative length of the tail, which in one individual equals, without the hairs, that of the body.

Didelphis Californica. ***Did. vellere lanato ad apicem nigro, setis longis omnino albis exstantibus; facie pallidè brunneo-nigrescente, maculâ præoculari saturatiore; labiis genisque albis.***

Long. *corporis* cum capite, 12 unc.; *caudæ*, 16; a naso ad auris marginem posticam, 4¼.

Didelphis breviceps. ***Did. capite breviore; vellere lanato ad apicem nigro, setis longis omnino albis exstantibus; facie pallidè brunneo-nigrescente, fasciâ oculari a naso ad aures extensâ nigrâ; labiis genisque albis.***

Long. *corporis* cum capite, 12 unc.; *caudæ*, 12; a naso ad auris marginem posticam, 3.

Of the former of these *Opossums* two specimens were exhibited; of the latter, one. They are distinguished from each other at first sight by the comparative length of their heads, the ears in *Did. breviceps* being rather more than an inch nearer to the tip of the nose than those of *Did. Californica*. They both belong to that section of the genus which has long bristles intermingled with and projecting far beyond the woolly undercoat; and in both, as in the *Virginian* and *Brasilian* species, *Didd. Virginiana*, Cuv., and *Azaræ*, Temm., the bristles are white throughout their whole length. From the *Virginian Opossum* they are distinguished by the darker colour of the face, and by the much greater length of the tail. From *Did. Azaræ* they differ by the last-mentioned character, and by the absence from the face of the four spots, one over each eye and one near each ear, which give to the head of that animal some resemblance to that of *Did. Opossum*.

Spermophilus spilosoma. ***Sperm. auriculis nullis; brunneo-rufescens, dorso parùm nigro tincto alboque creberrimè guttato; labiis, mento, palpebrisque albis; ventre artubusque flavescentibus; caudâ prope apicem nigrâ, albo apiculatâ.***

Long. *corporis* cum capite, 5¼ unc.; *caudæ*, 2¼; *caudæ* cum pilis, 3.

This animal, of which two skins were exhibited, agrees in colour and markings with the description of the *American Souslik, Arctomys* (*Spermophilus*) *guttatus?*, Rich., published in the 'Fauna Boreali-Americana,' vol. i. p. 162. But the length of the tail as compared with that of the body is so different both from Dr. Richardson's measurements of the *American*, and Pallas's of the *European* species, that it can scarcely be considered as a variety of either. If the dimensions of the *American Souslik* had been taken from one specimen only, it might have been suspected that its tail had been mutilated; but the measurements of two individuals are given, in only one of which does the length of the tail exceed in a trifling degree one sixth of that of the body and head taken together. In the *Californian Souslik* its length considerably exceeds one third of that of the head and body. The markings of its tip are peculiar: a black spot occupies the fur covering the end of the caudal *vertebræ*, and about one half of the space beyond their termination, the remaining half being pure white.

The specimens are young, and have probably not attained their full growth. The crowns of their molar teeth are not at all worn.

Spermophilus macrourus. *Sperm. auriculis mediocribus; niger, albo subfasciatim creberrimè irroratus; capite nigro, pilis albis ad faciem parcè sparsis; palpebris albis; labiis mentoque ferrugineis; ventre ferrugineo nigro vario; caudâ longâ nigro alboque variâ.*

Long. *corporis* cum capite, 11½ unc.; *caudæ*, 7; *caudæ* cum pilis, 8½.

The black head, on which a very few white hairs exist, and the purely white eye-lids, are very conspicuous marks of this species, which is nearly related to *Spermm. Franklinii, Beecheyi*, &c., by the length of its tail, the similar markings on all sides of this organ, and the laxness and length of the hairs which cover it. The hair on the body is short, adpressed, and firm but not harsh. The markings on the back and sides consist of white, undulating, interrupted and frequent transverse white stripes on a black ground; the black predominating along the middle line of the back, and the white on the sides.

Sciurus nigrescens. *Sci. niger, albo arenoso-varius; subtùs pallidior, grisescens; maculâ post-auriculari albidâ; caudâ nigro alboque variâ.*

Long. *corporis* cum capite, 11¼ unc.; *caudæ*, 10¼; *caudæ* cum pilis, 14.

The hairs of the upper surface are rather long, soft and smooth; each of them is tipped with white, occasioning, when viewed in certain lights, an iron-grey colour: on the under surface the black is less deep, and the white tips are longer than on the upper surface. The colour of the limbs corresponds with that of the adjoining surfaces, except on the upper part of the *tarsus*, where it is black; on the toes, however, the hairs are again freely tipped with white. The long hairs of the tail are nearly all terminated by white, occupying the terminal fourth or fifth part of their length; hence the sides and extremity of that organ are nearly white, the black being most conspicuous along its middle, and for about the first quarter of its length.

The pale spot behind each ear, if permanent in the species, will furnish a ready distinguishing mark.

Lepus nigricaudatus. *Lep. vellere mollissimo, pilis raris elongatis sericeis intermixtis; suprà nigrescenti flavidoque varius, infrà et ad clunes artusque albus; nuchâ caudâque supernè nigris; gutture flavescente; tarsis saturatè rufis; auriculis ad apices albis.*

Long. *corporis* cum capite, 23 unc.; *capitis* ante aures, 4; *auriculæ*, 5; *tibiæ*, 4½; *pedis postici*, 4½.

The softness and general appearance of the fur resemble those of a *Rabbit* rather than of a *Hare*. The colouring of the under surface is separated from that of the upper by a distinct line about the middle of the side, which slopes upwards over the haunches to the middle line of the back. Behind this point, the white passing backwards along the middle line becomes more and more blended with black, until the colour of the upper surface of the tail is entirely black.

The ears, which are longer than the head, are closely covered with short adpressed hairs. These are in front mixed black and yellow, giving a grizzled appearance; on the hinder part they are entirely ochraceous for about two thirds of the length of the ear, the terminal third, as well as the tip and the hinder fringe, being white, and furnished with much longer hairs. The long hairs fringing the anterior edge are ochraceous, excepting for a short distance immediately below the tip, along which space they are black.

Mr. Bennett concluded by calling the attention of the Society to two skins forming part of the same collection, which, notwithstanding their marked difference in fur and colour from an arctic specimen of the *Meles Labradoria*, Sabine, he felt disposed to consider as referrible to that species. The general form is the same; the colour of the legs similar; and the light markings on a dark ground on the head and face correspond precisely; the ground colour being, however, much darker, of a blackish brown, and grizzled with white on the hinder part of the head. The middle white line shows itself indistinctly in two or three places along the back, where the hairs are long, silky, and soft, but without any intermixture or woolly appearance. Towards their base they are slightly crisped; their colour is here tawny; it then becomes black; and the tips are white. Hence results a grizzled white and black with only an occasional tinge of tawny on the back; a somewhat undulated appearance of white and black, with a considerable mixture of tawny, on the sides, where the white strongly predominates; the black then disappears altogether, the sides of the belly being tawny and its middle white. The tawny colour extends across the chest; but the throat and chin are pure white. The tail is tawny on both surfaces, and becomes much darker at the tip. From this description it will be seen that the animal accords sufficiently with the *Tlacoyotl* of Hernandez. The difference in the adpressed and firmer character of its fur from the lax and almost woolly nature of the fur of the arctic *Badger*, may be accounted for by its being less exposed to cold, and consequently not requiring the additional protection of a much warmer covering; in the arctic specimen, too, it is probable that the pale grey colour, scarcely varied except about the head, is merely a result of that general law which gives to animals of snowy countries a white winter fur.

A specimen was exhibited of a species of *Sepiola* from the Mauritius, which had been presented to the Society by Charles Telfair, Esq., Corr. Memb. Z. S., and Dr. Grant explained its distinctive characters by comparison with a specimen of the *Sepiola vulgaris* of the Mediterranean, exhibited for that purpose. He showed that while the body of the Eastern species is four times the size of that of the European, its arms do not exceed in length those of the latter species. On account of this comparative shortness of its members he proposed to designate it as the *Sepiola stenodactyla*, regarding it as the type of a new species distinguished from the single species previously known not merely by the important structural character just noticed, but also by the greater number of pedunculated suckers on its *tentacula*, and by the markings of the *tentacula* which are transversely banded, those of the European species having round spots.

Dr. Grant described the animal in detail, and exhibited a drawing in illustration of his description.

Dr. Grant subsequently gave a demonstration of the structure of the heart and of the distribution of the blood-vessels of the *large Indian Tortoise, Testudo Indica*, Linn., which died lately at the Society's Gardens. He pointed out the manner in which the quadrangular fold lying over the openings of the two auricles serves as a valve to these auricles during the contraction of the ventricle, and to direct the currents of venous and arterial blood to opposite sides of the ventricle during its dilatation. The remarkable spongy texture of the left chamber of the ventricle, formed by innumerable minute and separate fleshy columns which traverse it in every direction, to mingle thoroughly the two kinds of blood to be sent through the systemic arteries, was finely displayed in this large animal. The fleshy fold bounding the right chamber of the ventricle, ingeniously compared by M. Meckel (Vergleich. Anat. 1831, p. 223,) to the fleshy tricuspid valve of *Birds*, was also found largely developed, and might well assist in the separation of the venous blood of the right auricle, and in its propulsion through the *bulbus arteriosus* and pulmonary arteries. The two systemic *aortæ* were distinctly seen to commence by separate orifices from the ventricle, as in the aquatic *Chelonia*, and not by a single orifice as stated by Cuvier to occur in the *land Tortoises* (Leçons, iv. p. 221). All the orifices of the ventricle are provided with two valves of a semilunar form; even the auriculo-ventricular orifices are each provided with a semilunar valve besides the continuous fold extended over both their orifices. No trace of valves could be observed on the entrance of the pulmonary veins into the left auricle; but two very large semilunar folds protect the entrance of the systemic veins into the right auricle. The partitions of the interior of the ventricle are here but imperfectly developed, compared with those of the aquatic *Chelonia*.

He directed the attention of the Members to the size and condition of the two *ductus arteriosi*, one leading from each pulmonary artery to the descending *aorta* of the corresponding side, which in this adult animal were still obvious and strong cords, though with their canals almost obliterated. He observed that the *Chelonia* here exhibited as a permanent character what is found in *Birds* only at an early period of their life; the *ductus arteriosus* being double in birds in their fœtal state, and the one on the right side disappearing before that on the left, while in *Mammalia* the left only is present in the embryo.

The distribution of the great trunk sent to the upper parts of the body, the smallness of the communicating branch between the two descending aorta, the origin and distribution of the cœliac and superior mesenteric arteries, the subdivisions of the single abdominal aorta, the limited distribution of the vena portæ, and other parts of the circulating system of this large Tortoise, were also pointed out.

April 9, 1833.

Joseph Cox Cox, Esq., in the Chair.

Several extracts were read from a letter, addressed by Dr. A. Smith, Corr. Memb. Z.S., to Mr. Yarrell, and dated Port Elizabeth, Algoa Bay, December 22, 1832.

Dr. Smith states his belief that the *Hyæna vulgaris*, Cuv., does not inhabit South Africa; its place being occupied by the *Hyæna villosa*, Smith, which bears, when young, considerable resemblance to that species.

He also states that the *Eagle* from the Cape, which was presented to the Society by the Hon. J. T. Leslie Melville, and which is now living in the Menagerie, is not the young of *Aquila vulturina*, Daud., but of *Aq. Choka*, Smith, (*Falco rapax*, Temm.).

He remarks that *Vultur auricularis*, Daud., is not confined to the interior of South Africa, but is met with close to Cape Town, over which he has seen it flying. The belief that several pairs build their nests together (whence the appellation of *sociable Vulture* has been derived,) is erroneous; for Dr. Smith has never met with more than one nest actually occupied upon the same tree: the error has probably originated in a new nest being occasionally built adjoining to an old one, which had been deserted on account of its having become unserviceable. The bird seems but little disposed to sociability; rarely more than two are seen together, and if four occur in the vicinity of a carcass, the number is considered as great; while of *Vultur fulvus*, it is by no means uncommon to see a hundred, or even more, congregated together where carrion exists.

Dr. Smith adds that *Aquila Verreauxii*, Less., is synonymous with *Aq. vulturina*, which has recently been described by M. Lesson as a *Haliäetus*: it has, however, none of the habits of the *Fishing Eagles*. It inhabits the highest and most rocky mountains, preying chiefly on the *Cape Hyrax*. The error has probably arisen from the white back being concealed, in stuffed specimens, by the wings.

M. Lesson, in November 1830, founded two new genera, *Gymnogenys* and *Teratophius*, on the *Falco Gymnogenys*, Temm., and *Falco ecaudatus*, Shaw. These genera are respectively synonymous with *Polyboroides* and *Helotarsus*, proposed by Dr. Smith in the 'South African Journal' in April of the same year.

The *Circäetus pectoralis* and *Falco Chicqueroides* of Dr. Smith are respectively synonymous with *Circ. thoracinus*, Cuv., and *Falco biarmicus*, Temm.

Dr. Smith also states that the *Antelope* described by Mr. Woods in the 'Zoological Journal' as the *Antilope personata*, is the young of *Ant. pygarga*, Pall., the *Bonte Bok*.

An extract was read from a letter, addressed to the Secretary by Charles Telfair, Esq., Corr. Memb. Z.S., and referring to a Viverridous animal obtained by that gentleman from Madagascar, which lived for several months in his possession, and on its death was transmitted in spirit to the Society. Mr. Telfair states his belief that the animal is new to science; a belief in which Mr. Bennett participated. The specimen was exhibited, and Mr. Bennett pointed out, in reference to a "Description of a Viverridous Animal from Madagascar," its resemblance to the *Paradoxuri* in the plantigrade character of its feet; the webbing of its toes almost to their extremities; and the number and retractility of the claws, which on the fore-feet are sharp and resembling those of the *Cats*. Its general appearance also approaches that of *Paradoxurus*; but the fur is short, adpressed, and of uniform colour, and the tail is slender, cylindrical, and equally hairy all round, rendering it probable that this organ is not subject to being curled in the manner usual in that genus, from which it also differs in the possession of an anal pouch. In the young individual exhibited the dentary characters could not be ascertained, its teeth being only of the deciduous class. Its anatomical structure resembles, in the shortness of the intestines, the size and direction of the *cæcum*, the disposition of the superficial vessels of the kidneys, and in some other respects, that of the typical *Viverridæ*, and approaches nearly to the structure of the *Felidæ*.

Mr. Bennett stated his impression that the animal should be regarded as the type of a new genus, nearly allied to, but distinct from, *Paradoxurus*. He proposed for it the name of *Cryptoprocta ferox*.

Some remarks by Mr. Spooner on the *post mortem* appearances of the *Moose Deer*, which died suddenly, at the Society's Gardens, on the morning of the 28th of March, were read.

"Having been informed by the keeper that a copious ejection from the stomach took place a few minutes previous to dissolution, I was impressed with the idea that a rupture of that organ had taken place, or that the animal had taken some poisonous ingredient with its food. A careful investigation of the alimentary canal, however, did not tend to verify such opinion, as the whole of the organs composing it bore a healthy aspect, with the exception of a few hydatids, which were found to be adherent to the peritoneal tunic of the stomach. The kidneys were in a state of chronic disease, which was more particularly confined to their cortical substance. The structure of the liver was also much impaired by chronic inflammation.

"On examining the *viscera* of the *thorax*, the ravages of acute disease were sufficiently apparent to account for the sudden death of the animal. The heart and *pericardium* were highly inflamed, as were also the large vessels proceeding to and from that organ. The *liquor pericardii* was morbidly augmented, and of a sanguineous hue. The right side of the heart was hypertrophic, and the lungs were more than usually congested. In conclusion I beg leave to state that, in my opinion, there can be no doubt that the immediate cause of death was the acute disease of heart, but that the chronic disease of kidneys and liver was the remote cause."

A specimen was exhibited of an *Antelope*, previously undescribed, which forms part of the collection of Mr. Steedman, by whom it was communicated to the Society. It was characterized by Mr. Ogilby as the

ANTILOPE ELLIPSIPRYMNUS. *Ant. cornubus maximis, elongatis, procurvis, annulatis: rhinario magno: scopis nullis: poris inguinalibus: caudâ longâ, floccosâ: pilis rigidis, floccosis, lineæ dorsalis cervicisque mediæ reversis: rufo-brunneo griseoque varius, metopio saturatè brunneo, maculâ longâ supraoculari, labiis, fasciâ indistinctâ gulari, maculâ jugulari, ellipsique prymnali, albis.*

Mr. Ogilby gave the following detailed description.

"This magnificent animal, which belongs to that section of the *Antelope* genus which Colonel Smith denominates *Ægoceri*, and which comprehends the *Ant. leucophæa* and *Ant. equina* of naturalists, measures 7 feet 3½ inches from the muzzle to the root of the tail, 3 feet 10 inches in height at the shoulder, and 3 feet 8 inches at the croup. The horns measure 30 inches along the curve, and the tail with the hair 21 inches.

"The ground colour, both above and below, is a mixture of grey and russet brown, the latter predominating on the back, croup, cannons and pasterns. The forehead and chaffron are uniform dark brown. The hair is uniformly harsh, and divided into separate locks, which lie in different directions. On the back, immediately above the loins, there is a little whorl or centre, from which the hair all along the back and neck is reversed or directed forwards. The hair of the neck is longer and more bristly than that of the body, reversed above, and directed transversely over the sides so as to form a lengthened ridge on the throat. There is no mane nor beard. A large white mark passes over each eye, extending 3 or 4 inches down on each side of the chaffron; the lips and interior of the ear are also white, and an indistinct band of the same colour crosses the throat, at the junction of the head and neck. The hair on the chest is also reversed, and directed upwards. The ears are large and broad like those of an *Ox*; they are covered on the outside with short hair of a pale red colour, having a white mark on the under edge, and marked with five longitudinal *striæ* within, as in the generality of the *Antelope* genus. The tail reaches nearly to the heel, and is covered with hair like that of the body, brown above, white beneath, and very slightly tufted. But the most extraordinary mark is a white ribband which passes over the croup, down each hip, and unites between the thighs, so as to form a perfect and regular ellipse, of which the root of the tail occupies the upper focus. This mark contrasts in a most remarkable manner with the deep russet colour of the surrounding parts, and is in itself so singular and characteristic of the animal, that I have judged it proper to commemorate it in the specific appellation.

"The horns are 2¼ inches distant at the base, and 22½ at the points. They first point backwards and outwards, spreading widely and directed nearly in a straight line for the first 12 inches of their length, then bend forwards and slightly inwards with a uniform curvature, the concavity being in front, or just in the opposite direction from that which is observed in the *Ant. leucophæa* and *Ant. equina*. At first I was inclined to believe that this direction might have been given them by mistake in the stuffing of the specimen, but Mr. Gould assured me that they were attached to the *os frontis*, and could not possibly have been reversed. They are surrounded by twenty-four distinct and prominent annuli, nearly obliterated behind, and extending to within 6 inches of the points, which are smooth and blunt. Between the *annuli* the horns are marked with deep and regular striæ, which run in a longitudinal direction. As far as the *annuli* extend they are of a light brown colour, but the smooth part is black, and they are almost of a uniform thickness from the root to the points. Their circumference at the base is 9 inches. The muzzle is large and naked; there are neither crumenæ, nor scopæ on the knees, but the inguinal pores are very distinct, and surrounded by a naked space of considerable extent.

"The locality from which Mr. Steedman procured this magnificent specimen, which at present forms one of the principal ornaments of his valuable collection of South African animals, lies about twenty-five days' journey north of the Orange river, between Latakoo and the western coast of Africa. That gentleman informs me that he never saw but one other specimen, which, however, was not perfect, but of much larger dimensions than the present individual, and with longer and stouter horns."

Mr. Ogilby subsequently called the attention of the Society to a specimen of a Mammiferous Quadruped, also communicated by Mr. Steedman for exhibition, which he described in detail with reference to a paper "On the Characters and Description of a new Genus of Carnivora, called *Cynictis*."

The new genus proposed by Mr. Ogilby connects the family of the Civets with that of the *Dogs*, participating with the one in its organs of mastication, and with the other in those of locomotion, and consequently ranking with *Proteles*, Isid. Geoff., as a second genus intermediate between these two groups. *Proteles*, however, partakes in some degree of the characters of the *Hyænas*, while *Cynictis* is more immediately intermediate between the *Dogs* and Ichneumons, to the latter of which it bears a pretty close resemblance in external form.

The generic characters may be thus expressed.

CYNICTIS.

[illegible] quorum utrinque

utrinsecus tres priores spurii, quartus carnarius, sequentes tuberculati.

Pedes digitigradi, digitis 5—4, unguibus falcularibus longis fossoriis.

Cauda longa, comosa.

Genus inter *Ryzænam* et *Herpestem* intermedium, et dentibus et digitorum numero.

Cynictis Steedmanni. *Cyn. rufus, dorso saturatiore; genis, collo, lateribus caudâque rufis griseo intermixtis; caudæ apice sordidè albo.*

Long. *corporis* cum capite, 1 ped. 6 unc.; *caudæ*, 1 ped.; *capitis*, a rostro ad auriculæ basin, 2⅛ unc.; *auriculæ*, ¾; *auriculæ* latitudo, 1¾.

The general colour, as well as the whole external appearance of the animal, is that of a small *Fox*.

Mr. Ogilby described in detail the generic and specific peculiarities, and pointed them out on the preserved skin and on the *cranium*; in the latter, as in that of *Herpestes*, the bony ring surrounding the orbit is complete. He added also references to the Travels of Sparrman, for a notice apparently of this animal; and to those of Mr. Barrow, (vol. i. p. 185,) in which a brief, but perfectly intelligible account of it is contained: it is there said to be "known to the colonists under the general name of *Meer-kat*."

Mr. Steedman's specimen was obtained in the neighbourhood of Uitenhage, on the borders of Caffraria.

Lieut. Col. Sykes exhibited a fœtus of a *Panther*, preserved in spirit, and exhibiting all the markings of the adult; thus showing that the animals of this species do not undergo the changes in markings in their progress towards maturity which are generally found to occur in the genus *Felis*. Col. Sykes's chief object in bringing it before the Society, was to call attention to certain subcuticular appearances, involving questions on the vascularity and colouring principle of hair, and, by analogy, of feathers also. The body of the fœtus is covered with the tawny hair and numerous black rings of the adult, and of an equally brilliant colour: on the limbs, however, there is not any hair, but where the future spots are to appear there exists a black circle or blotch, indicating an arrangement of the colouring matter, or a textural arrangement for the reflection of this particular colour, at a period antecedent to the access of light.

In the Paper in which Col. Sykes described these appearances, he considered the growth of hair and of feathers, and the causes of the changes of colour observed in them, quoting largely from various authorities. He also adduced remarks made by himself in support of the probability that, although their existence has not yet been demonstrated, these assumed extra-vascular parts are provided with vessels and with nerves. His principal arguments were deduced from the deep attachment of some feathers and quills; the multitude of vessels in the roots, and the nerves traceable to the bulbs of hair; the direct action of the will upon hair and feathers in certain animals; the fact of hair becoming an organ of sensation in [illegible]; the effect of impressions of the mind and of disease upon the hair in man; the internal preparatory process for receiving particular colours; and the changes produced by sexual periods. He further inquired whether, as hair grows from the *cutis* and never through the rete mucosum, this latter membrane may not be the depository of the colouring matter, whence it is taken up permanently by hair and by most feathers, but only at certain seasons by others. Whether, however, the change of colour in feather and hair be owing to the diffusion of a new body through them, or to a modification in the arrangement of their primary molecules causing them to reflect other rays—in either case, he apprehends, organic action is equally implied.

April 23, 1833.

The Dean of Carlisle in the Chair.

The following letter, addressed to the Secretary by Mr. J. C. Lees, was read. It was accompanied by a drawing of the animal referred to in it, which was exhibited: it represented a species of *Glaucus*, Forst.

"Being at sea about two years ago, between the Azores and the Bahama Islands, in about lat. 30° N., long. 50° W., I observed the surface of the sea thickly covered in every direction, as far as I could see, with small animals. Having drawn up some of them in a bucket, I found them to have bodies and tails nearly resembling those of a *Lizard*, but the head was thick and blunt without any appearance of neck. I could not discover either eyes or mouth. Four short arms, or limbs, were attached to the body, nearly in the same situation as the legs of a *Lizard*, and from the outer end of each of them proceeded, in a radiating direction, fifteen slender feelers, diminishing to a fine point, the centre ones longer than the others. These animals were of a deep, but vivid blue colour, with a bright, well-defined line of silver down the back, from the head to the extremity of the tail; this streak of silver branched off also into the arms, and along each of the feelers, till towards the points it formed so thin a line as to become gradually imperceptible. The under part of the animals was of a silvery white; their appearance was very beautiful; they were about 1¼ inch long from the front of the head to the end of the tail, and about the same across from the extremities of the longest of the opposite feelers. The water continued covered with them for two days, during which time we sailed over about 100 miles; the number of them must therefore have been prodigious.

"They remained perfectly quiet in the water except, when touched, when they either partially or entirely drew themselves up into a ball: they could in this manner draw up either one or more feelers, or the whole limb, with its fifteen. They did not appear to notice the approach of a finger or piece of stick until it actually touched them, and then did not attempt to swim away, but only drew up the part touched with a sudden and apparently angry jerk of the head. If the touch was violent or repeated, they drew themselves entirely up in a globular form; and the same thing occurred when they came in contact with each other. I endeavoured to preserve some of them alive by keeping them in sea water, but in three or four days they all died, and immediately shrunk up into a shapeless mass of a brown colour. I was equally unsuccessful in my endeavour to preserve them in spirits, in strong salt and water, or in vinegar: the instant they were introduced into those liquids they shrivelled up into a brownish shapeless mass. Although I have several times crossed the Atlantic, and have continually had other opportunities of observing the sea, I have never before or since seen any of these animals. Neither the captain nor seamen of the vessel I was in recollected ever having seen any of them."

A note was read, addressed to the Secretary by Charles Telfair, Esq., Corr. Memb. Z.S. It was accompanied by a fossil bone from Vohemar in Madagascar, which was exhibited. The bone was considered as "part of the palate of a fish, called, in these seas, *la gueule pavée.*" It was contrasted with the bones constituting the grinding apparatus of the *spotted Eagle Ray, Myliobatis Narinari*, Dum., from which it was remarkably distinct both in form and structure. It appears to be referrible to the inferior pharyngeal bone of a gigantic species of *Scarus*. In a recent *Scarus*, a foot in length, the inferior pharyngeal bone is 3 lines wide, and the number of series of oval *laminæ* forming its teeth is three, reckoned transversely, and exclusive of the elevated series forming a border along each side. In the fossil, the raised margins are wanting: without these its breadth is 1 inch and a half, and the number of series of *laminæ* is four. Some recent specimens in the Museum of the Royal College of Surgeons are little inferior in size.

The exhibition was resumed of the collection of *Shells* formed by Mr. Cuming on the western coast of South America, and among the islands of the South Pacific Ocean. The new species brought on the present evening under the notice of the Society were accompanied by characters by Mr. Broderip and Mr. G. B. Sowerby.

Genus CONUS.

Before the author proceeds to describe the species brought to this country by Mr. Cuming, it may be necessary to point out the difficulty of the task, arising from the infinite varieties presented by this genus, and the very few points of form and structure in the shell which can be relied on as the foundation of specific character.

M. de Blainville, when noticing the numerous species already recorded, gives us a hint that many of them may be what Adanson calls "espèces de cabinet;" and no one can examine an extensive collection of *Cones*, particularly if it contain many individuals of each species for the purpose of comparison, without being struck by the force of the observation. Colour,—granulation or smoothness,—length or shortness of the spire,—its plainness or coronation,—will be found in many species to be the result of locality, food, or temperature. The following descriptions are, therefore, given with the diffidence which an investigation of the subject cannot fail to inspire.—W. J. B.

CONUS TIARATUS. *Con. testâ rhomboideâ, castaneâ monilibus castaneo-albis tessellatis et basin versus pallidè bifasciatâ; spirâ subproductâ coronatâ: long.* $1\frac{2}{8}$, *lat.* $\frac{5}{8}$ *poll.*

Hab. ad Insulas Gallapagos.

This species varies in size and intensity of colour. In fine specimens the white and chestnut tessellated necklaces are very distinct. The interior of the shell corresponds in colour with its exterior.

Found on sand in small ponds of sea-water.—W. J. B.

CONUS TORNATUS. *Con. testá rhomboideo-productá, sulcatá, sulcis prominentibus, scabris, albá castaneo maculatá et punctatá; spirá conicá, productá, carinatá; epidermide subfuscá, tenui: long.* 1⅛, *lat.* ½ *poll.*

Hab. in Americâ Meridionali. (Xipixapi.)

This elegant species looks as if it had been turned in a lathe. It was found from ten to twelve fathoms deep in sandy mud.—W. J. B.

CONUS NIVIFER. *Con. testá conicá, subfuscá maculis niveis frequentissimè sparsâ et fasciis 3 castaneis (ultimo maximo) cinctá; spirá planiusculá, apice acuto; basi castaneá: long.* 1, *lat.* ½ *poll.*

Var. α fasciis subobsoletis.

Var. β sine fasciis: varietas forsan *Coni nivosi*, Lam.; quære tamen.

Hab. ad Insulas Capo de Verde dictas.—W. J. B.

A very elegant species, especially when well developed and with the three dark bands complete.

The variety β may be Lamarck's *Con. nivosus*, but he refers to no figure, and the term "mouchetures" will hardly apply to the flake-like spots on our shell.—W. J. B.

CONUS NANUS. *Con. testá conicá, sursum albá, deorsum lividá; spirá coronatá, apice acuto; basi et fauce purpurascentibus: long.* ⅞, *lat.* ½ *poll.*

Hab. in Oceano Pacifico. (Lord Hood's Island.)

Found on the reefs.—W. J. B.

CONUS LUTEUS. *Con. testá rhomboideo-productá, luteá monilibus castaneis exilibus cinctá et maculis nigro-castaneis albo limbatis in spiram et in anfractûs basalis medium tessellatá: long.* 1¼, *lat.* ⅝ *poll.*

Hab. in Oceano Pacifico. (Annaa.)

The spire of this species, though full and rounded, terminates in a short acute point. The shell tapers rapidly towards the base. When in perfection, its rich saffron colour, girt with numerous delicate necklaces, and the broad belt of interrupted tessellated spots of the darkest chestnut bordered with the purest white, give it a very beautiful appearance. The tessellated spots are so regularly set on the whorls of the spire as to look like mosaic work. Some of the specimens have a pale yellow for the ground colour; but these seem to be faded.

Found on the reefs.—W. J. B.

CONUS CONCINNUS. *Con. testá sub-pyriformi, politá, basi transversim sulcatá, albo luteoque quasi geographicè pictá; spiræ*

[illegible]

[illegible]

[illegible]

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This *Cone* varies much in its colouring and markings. Some varieties present fantastic figures like *Con. Augur*; in others the brown patches are large and like cloudy shapes; in all, the brown and white tessellated necklaces are to be seen, as well as the violet rim on the inside of the lip. As in most of the *Cones* which have that peculiarity, some individuals are much more granulose than others.

Found on sandy mud in the clefts of rocks.—W. J. B.

CONUS GLADIATOR. *Con. testâ conicâ, brunneâ albo obscurè longitudinaliter strigatâ, balteo subcentrali subobsoleto, albente; spirâ subcoronatâ, granuloso-striatâ, brunneâ albo maculatâ; epidermide crassâ longitudinaliter rugosâ, hinc et hinc subtomentosâ: long.* 1⅞, *lat.* 1 *poll.*

Hab. ad Panamam.

Sometimes the ground colour is ash-colour, with longitudinal chestnut stripes.

Found in sandy mud in the clefts of rocks.—W. J. B.

CONUS ORION. *Con. testâ conicâ, castaneâ albo sparsim maculatâ, balteo albo supernè interdum castaneo tessellatâ cinctâ; spirâ mediocri albo castaneoque maculatâ: long.* 1⅛, *lat.* ⅞ *poll.*

Var. vittâ albâ moniliformi inter spiram et balteum.

Hab. in Americâ Centrali. (Real Llejos).

Found in soft sand in the clefts of rocks.—W. J. B.

CONUS GEOGRAPHUS.

Varietas nana, rosea: long. 2, lat. ⅞ poll.

Hab. in Oceano Pacifico. (Annaa.)

I do not find sufficient grounds for distinguishing this shell from *Con. geographus*. It is rather more dense in proportion to its size, and the spire is somewhat more elongated and contracted than that of the large variety: but these differences cannot be depended on as specific distinctions when set against the resemblance to *Con. geographus* in general form, and in the texture of its markings.

Found on the reefs.—W. J. B.

CONUS PRINCEPS.

Var. *α*. *Con. testâ conicâ, croceâ vel flavâ lineis castaneis frequentibus longitudinalibus tenuibus inscriptâ: long.* 2⅛, *lat.* 1⅜ *poll.*

Hab. ad Sanctam Elenam.

I cannot distinguish this shell specifically from *Con. Princeps.* In some individuals, there is a blank interval without any lineations. The only *epidermis* which I have seen is smooth and thin.

Found in sandy mud in the clefts of rocks.—W. J. B.

Var. *β*. long. 2¼, lat. 1¼ poll.

Hab. ad Panamam.

This much resembles the last, but the lineations are less regular, and in some individuals almost entirely absent: the shell too is somewhat more ponderous than that of var. *α*. The only *epidermis* which I have seen is rather thick and tufted, like that of *Con. Princeps.*

Found in soft mud in the crevices of rocks.—W. J. B.

Var. γ. Tota crocea: long. 2¼, lat. 1¾ poll.
Hab. ad Montem Christi.

The spire of this is somewhat more developed than that of the shells above described; and elevated transverse lines surround most of the specimens. In some, traces of attempts at the longitudinal lineations are found. After a careful examination, I cannot separate this variety specifically from the other two. The elevated transverse lines are to be found in both the others.

Found in sandy mud in the clefts of rocks.—W. J. B.

In further illustration of his Paper "On the Laws that regulate the Changes of Plumage in Birds," Mr. Yarrell exhibited several varieties of British species, which possessed in part only the plumage common to the race. In some of these the feathers assumed at the moult were of the natural colour, and distinct from those previously borne; from which it was inferred, that, as the bird increased in age and strength, the plumage would assume entirely the colours peculiar to the species.

Mr. Yarrell also referred to some newly-collected series of feathers, which were shown. They were taken from birds at this time assuming the plumage of summer. In the *black-tailed Godwit*, *Limosa melanura*, Leisl., many of the old feathers produced at the preceding autumn moult still retained the colours they had borne through the winter; others were changing; and some had entirely assumed the colours peculiar to the breeding season, bearing the same tints and markings as some new feathers, the webs of which were only partly exposed. A series of feathers from the breast of the *Golden Plover*, *Charadrius pluvialis*, Linn., were also shown,—some entirely white, the colour peculiar to winter; some entirely black, being the prevailing colour of the breeding season; and others bearing almost every possible proportion of well-defined black and white on the same feathers.

Several feathers were also shown which were taken from a *Herring Gull*, *Larus argentatus*, Brunn., in its third year, which is now at the Society's Gardens. This bird was examined at Christmas last. Several tertial feathers were found to have their basal half blue-grey, the other half mottled with brown. Two notches were made with scissors in the webs of these feathers, intended to refer to the two colours then present. Some other feathers were wholly mottled with brown, and were marked with one notch. This bird was re-examined in April. The tertial feathers, which, when marked, were of two colours, were now entirely blue-grey; one feather was tipped with white. The other feathers, which, when marked, were wholly mottled, were now, for two thirds of their length, pure white, the terminal third alone retaining the mottled brown.

May 14, 1833.

William Yarrell, Esq. in the Chair.

Various skins of *Birds* from Switzerland, presented to the Society by the Administration of the Musée Académique of Geneva, were exhibited. They comprised several species not previously contained in the collection.

At the request of the Chairman, a paper by Mr. Gould "On a new Genus of the Family *Corvidæ*" was read. The genus proposed by Mr. Gould comprehends the *Pica vagabunda*, Wagl., *Pica Sinensis*, Gray, and a third species which the author believes to have been hitherto unnoticed. To this group, on account of its arboreal habits, he gives the name of

DENDROCITTA.

Rostrum capite brevius, cultratum, ad basin latum, culmine arcuato, lateribus subtumidis.

Nares basales, plumis setaceis partim tectæ.

Alæ mediocres, remigibus 5tâ 6tâque longioribus.

Cauda elongata, cuneata, rectricibus spatulatis.

Tarsi breves, debiles. *Digiti* mediocres. *Hallux* fortis, ungue forti, incurvo.

Typus genericus.

DENDROCITTA LEUCOGASTRA. *Dend. atra; occipite, cervice, strigâ transversâ ad remigum basin, abdomineque albis; scapularibus, interscapulio, tectricibusque caudæ inferioribus dilutè castaneis; rectricibus duabus internis nisi ad apices cinereis.*

Hab.

The shortness and comparative feebleness of the *tarsi* in *Dendrocitta*, and its more elongated tail, the feathers of which are equally graduated, except the two middle ones which are much longer than the others, distinguish it from the typical *Picæ*, the *common Magpie* for example. These characters are in accordance with its habit of wandering from tree to tree in search of its food. It is further distinguished by the form of its bill.

All the species yet known are natives of Eastern Asia.

Mr. Bennett called the attention of the Society to the skin and skeleton of an animal recently living in the Menagerie, and exhibited in illustration of a paper "On the Family of *Chinchillidæ*, and on a New Genus referrible to it," the commencement of which he read. The animal in question was purchased, in June 1832, from a dealer, who was completely ignorant of the locality from which it was originally obtained; and was brought by Mr. Bennett under the notice of the Committee of Science and Correspondence at its first meeting in that month. He then stated his conviction that it would be found to constitute the type of a new genus, intimately related to *Lagostomus* and *Chinchilla*, which he proposed to designate by the name of *Lagotis*, adding the specific denomination of *Cuvieri*, in commemoration of the illustrious naturalist, whose irreparable loss the world of science was just then called upon to deplore. He deferred, however, the completion of his account of the animal, until he should be enabled, at its death, to add the dentary and other internal characters, to the more obvious external distinctions on which he then relied. That opportunity having now occurred, he proceeded on the present occasion to redeem his pledge, and also to take a general view of the history, zoological characters and anatomy of the family to which it manifestly belongs.

As regards the history of *Lagotis*, although the last of the three animals constituting the family to come under the cognizance of zoological science, Mr. Bennett stated that he had little doubt that it was in fact the earliest known to travellers in South America, which he had no hesitation in assigning as its native country. He believed it to be the *Viscacha* of all the writers from Pedro de Cieça downwards, (including Acostà, Garcilasso, De Laet, Nieremberg, Feuillée, Ulloa, Vidauré, Molina, Schmidtmeyer and Stevenson,) who have mentioned that animal as an inhabitant of the Western or Peruvian acclivities of the Andes. The *Lagostomus*, on the other hand, is clearly the *Viscacha* described by so many travellers as colonizing the vast plains eastward of that great chain. Among these he cited Dobrizhoffer, Jolis, D'Azara, Proctor, Head, Miers and Haigh. For its zoological history he referred to its various describers, from M. De Blainville to M. Lesson. To complete the history of *Chinchilla* he also gave an account of the various notices regarding it, which have appeared since September 1829, the date of his account of it in the 'Gardens and Menagerie of the Zoological Society.'

The following characters point out the situation occupied by the three animals in the Order *Rodentia*, and the generic differences that exist between them.

Trib. HERBIVORA, F. Cuv.

Dentes molares eradicati, per totam vitam pulpâ persistente crescentes.

Fam. CHINCHILLIDÆ.

Dentes incisores superiores simplices; molares $\frac{4-4}{4-4}$, *e lamellis osseis binis ternisve tænialibus inter se parallelis, substantiâ vitreâ omnino circumdatis, constantes: coronidibus invicem exactè oppositis, attritu complanatis.* Americæ Australis incolæ, gregarii, subterranei, mites. Artus postici anterioribus subduplò longioribus. Cauda producta, ad apicem supernèque longè setosa.

Gen. 1. LAGOTIS.

Dentes incisores $\frac{2}{2}$ *acutati; molares* $\frac{4-4}{4-4}$, *singuli e lamellis tribus com-*

pletis obliquis constantes. Cranium posticè supernèque arcuatum, tympani cellulis superioribus inconspicuis. Pedes omnes tetradactyli, pollice omninò deficiente, unguibus parvis subfalcularibus. Auriculæ longissimæ. Cauda longa. Rupicolæ (Peruviani) vellere molli caduco induti.

LAGOTIS CUVIERI.

Gen. 2. CHINCHILLA.

Dentes incisores $\frac{2}{2}$ *acutati; molares* $\frac{4-4}{4-4}$, *singuli e lamellis tribus completis obliquis constantes, præter anticum inferiorem bilamellosum lamellâ anteriore profundè bilobâ. Cranium posticè retuso-truncatum, supernè depresso-complanatum, tympani cellulis conspicuè inflatis. Pedes antici pentadactyli, pollice completo; postici tetradactyli, unguibus parvis subfalcularibus. Auriculæ amplæ. Cauda longiuscula.* Rupicolæ Chilenses et Peruviani, vellere mollissimo tenacissimo induti.

1. *Chinchilla lanigera*, Benn.

2? *Chinchilla aurea.*

Callomys aureus, Isid. Geoffr. St. Hil. in Ann. Sci. Nat. tom. 21, p. 291.

Gen. 3. LAGOSTOMUS.

Dentes incisores $\frac{2}{2}$ *acutati; molares* $\frac{4-4}{4-4}$, *singuli e lamellis binis completis obliquis constantes, postico superiore trilamelloso. Pedes antici tetradactyli, pollice omninò deficiente, unguibus parvis falcularibus; postici tridactyli, unguibus productis rectis robustis. Auriculæ mediocres. Cauda mediocris.* Campestres Bonarienses et Paraguaienses, vellere parùm utili induti.

Lagostomus trichodactylus, Brookes.

The *Lagotis Cuvieri* has the size, and much of the general form of the rabbit. Its posterior limbs measure twice the length of the anterior; and its tail is about equal in length to its body exclusive of the head. Its whiskers are very numerous, closely set, and entirely of a jet black, ten or twelve of the longest on each side being exceedingly thick and rigid, and measuring 7 inches in length. The ears have nearly the form of a long parallelogram, regularly rounded at the tip, 3 inches in length, and 1 in breadth, with the margins rolled in below: they are so sparingly furnished with short scattered hairs as to appear almost naked. The fore feet, like the hinder, have only four toes, there being no vestige of a thumb; and the claws are small, slightly sharpened, and entirely concealed by long and somewhat bristly hairs. Those of the hinder feet are similar in shape and rather larger; but that of the inner toe is flattened, curved inwards, and exposed, the hairs immediately adjoining it giving place to a tuft of about eight rows of short, stiff, horny, curved bristles, approaching nearly in their rigidity to the comblike appendage, which is found in almost the same situation in the *Ctenodactylus Massonii*, Gray. A similar structure also occurs in the *Chinchilla*.

The hairy covering of *Lagotis* is almost entirely composed of a beautifully soft and downy fur, of considerable length, but loosely attached to the skin, and readily falling off, unless carefully handled. This fur is of a dusky hue at the base, and to within a short distance of the tip, where, for a space of from one to three lines in extent, it is of a dirty white, more or less tinged with yellowish brown. Through it protrude a few long hairs, which are entirely black: these are more numerous posteriorly. The mixture of these colours gives the general effect of a mottled greyish ash-colour. On the sides of the neck and body, where the tips of the fur verge more into yellowish brown than on the back, and where they are also of greater length, as well as on the haunches and beneath, the latter tinge appears rather more predominant. There is little of the dusky colour visible on the under surface. The hairs of the tail below are extremely short, closely adpressed, and entirely of a brownish black; on its sides they are of two kinds, black and white; and this is also the case with the very long, rigid, and erectile hairs, which form a crest along its upper surface. The very long, bristly hairs which project in a tuft at the tip are wholly black.

Mr. Bennett next proceeded to compare *Lagotis* with *Chinchilla*, occasionally illustrating his remarks by a reference to the structure of *Lagostomus*. He afterwards entered at length into the internal anatomy of the two former animals, and gave a full description of their skeletons, dwelling more particularly on the points of difference existing between them. He concluded by some observations on the tribe of *Rodentia* to which these animals are referrible, and on the genera which compose it.

May 28, 1833.

Lieut.-Col. Sykes in the Chair.

At the request of the Chairman, Mr. Gould adverted to a specimen of a *Hornbill*, now living at the Society's Gardens. He regarded it as a very young individual of the *concave Hornbill* of Dr. Latham, *Buceros cavatus*, and exhibited, in illustration of the adult characters of the bird, specimens of it from the Society's Museum.

A Paper was read "On the Characters of several New Genera and Species of Coleopterous Insects, by the Rev. F. W. Hope." It was accompanied by drawings of the objects represented, exhibiting the generic characters in detail. Those subjoined refer only to the more prominent distinguishing marks.

The insects described were the following:

Aploa, n. g. Carabidarum Truncati-pennium, Lebiæ affine.

Antennæ filiformes. *Palpi maxillares* articulo extimo simplici. *Mentum* in medio edentulum. *Thorax* anticè capite latior, margine postico recto. *Pedes* et *ungues* simplices.

Aploa picta. *Ap. flava; elytrorum maculis tribus fasciâque undulatâ posticâ nigris; antennis apicem versus obscurioribus; pedibus flaveolis.*
Long. 5 lin.; lat. 2½.
Hab. in Indiâ Orientali circa Poona.

Calosoma Orientale. *Cal. suprà obscurè viridi-æneum; elytris crenato-striatis, interstitiis æqualibus, transversim rugosis, punctis impressis viridi-æneis triplici serie dispositis.*
Long. 10½ lin.; lat. 4¾.
Hab. in Indiâ Orientali circa Poona.

Chlænius Sykesii. *Chl. ater; capite tricolori; elytrorum maculis sex aurantiis.*
Long. 9 lin.; lat. 4.
Hab. in Indiâ Orientali circa Poona.

Oiceoptoma tetraspilotum. *Oic. atro-violaceum; thorace miniato, quadri-punctato; pedibus nigro-cyaneis.*
Long. 9 lin.; lat. 4½.
Hab. in Indiâ Orientali circa Poona.

Languria Nepalensis. *Lang. cyanea; antennis piceis; elytris striato-punctatis.*
Long. 3 lin.; lat. 1.
Hab. in Nepâl.

This will probably be regarded as the type of a subgenus, having long *antennæ* with a slightly incrassated 3-jointed *clava*, legs comparatively long, narrow *tarsi*, and the posterior part of the *thorax* contracted.

Opilus auripennis. *Op. ater; thorace nigro; elytris auratis nitidissimis; pedibus nigricantibus.*
Long. 7 lin.; lat. 2.
Var. thorace rubro, antennis pedibusque rufescentibus.
Hab. in Brasiliâ. (Rio Janeiro.)

The three last joints of the *antennæ* in this insect differ from those of the typical *Opili*. The ninth and tenth are trigonate, with a deep incision, and the eleventh is ovate, depressed; in *Opilus*, the ninth and tenth are trigonate, and the eleventh is obliquely truncate. The *tarsi* are also 4-jointed, the basal articulation of those of the typical *Opili* being in this insect wanting. On these accounts it may be regarded as the type of a new subgenus.

Coptorhina, n. g. Copridi affine.

Antennæ clavato-lamellatæ. *Clypeus* profundissimè incisus. *Corpus* magnum. *Elytra* ad latera anticè sinuata.

Coptorhina Africana. *Copt. nigra; clypeo profundè inciso; thorace anticè retuso, posticè prominentiâ latâ; elytris tenuissimè striato-punctatis.*
Long. 8 lin. (dentibus clypei inclusis); lat. 5.
Hab. in Sierra Leone.

Coptorhina Klugii. *Copt. nigra; clypeo profundè inciso, dentibus porrectis, subreflexis; prominentiâ thoracis mediâ subfoveolatâ.*
Long. 6 lin.; lat. 4.
Hab. ad Caput Bonæ Spei.

Phænomeris, n. g. Anomalæ affine.

Antennæ 9-articulatæ, articulis tribus ultimis capitulum rotundum formantibus. *Palpi maxillares* articulo extimo ovato-elongato ad apicem conico. *Corpus* ovato-elongatum. *Caput* oblongiusculum. *Thorax* longitudine latitudini inæqualis. *Elytra* abdomine breviora. *Femora* incrassata, externè rotundata.

Phænomeris magnifica. *Phæn. viridis; capite nigro; thorace aurato; elytris striato-punctatis, igne micantibus; pedibus bicoloribus.*
Long. 7 lin.; lat. 3.
Hab. in Africâ. (Soudan.)

Macronata tetraspilota. *Macr. nigro-olivacea, punctata; thoracis lateribus pallidè stramineis; elytris olivaceis, maculâ mediâ irregulari alterâque apicali minore notatis.*
Long. 8 lin.; lat. 4½.
Hab. in Indiâ Orientali circa Poona.

CETONIA CRETOSA. *Cet. picea; thorace utrinque maculâ albâ; elytris albo variegatis.*
Long. 8 lin.; lat. 4.
Hab. in Indiâ Orientali circa Poona.

LUCANUS DOWNESII. *Luc. ater; thorace elytrisque ferrugineo-brunneis; mandibulis multidentatis, femoribus tibiisque ferrugineis; tarsis nigris.*
Long. (mandibulis inclusis) 31 lin. (mandibulis exclusis 21); lat. thoracis 8, ad humeros 7.
Hab. in Africâ. (Fernando Po.)

LUCANUS ÆRATUS. *Luc. æneo-virens; mandibulis dentatis nigris; tarsis flavo-pubescentibus.*
Long. (mandibulis inclusis) 10 lin. (mandibulis exclusis 9); thoracis vel elytrorum, 4.
Hab. in Indiâ Orientali. (Tenasserim Coast.)

PHOLIDOTUS IRRORATUS. *Phol. ater; thorace albo irrorato; elytris lineâ elevatâ albo variegatis.* (♀)
Long. 5¼ lin.; lat. 2.
Hab. in Brasiliâ. (Rio Janeiro.)

ANTHICUS CYANEUS. *Anth. cyaneus; capite nigro; antennis pedibusque atris.*
Long. 2 lin.; lat. ½.
Hab. in Novâ Hollandiâ.

This may be regarded as the type of a subgenus, for which Mr. Hope proposes the name of *Anthelephila*. Its maxillary *palpi* are unusually large, while the labial are scarcely longer than the *labium*, and are terminated by a cup-shaped articulation.

ISACANTHA, n. g. Curculionidarum Infracticornium.

Antennæ 11-articulatæ, extrorsum crassiores. *Mandibulæ* dentatæ. *Maxillæ* apertæ. *Corpus* elongatum, posticè dilatatum. *Femora* spinosa.

ISACANTHA RHINOTIOIDES. *Is. grisea; elytris punctatissimis; femoribus anticis spinis duabus æqualibus armatis.*
Long. 5½ lin. (rostro incluso, 7); lat. 2.
Hab. in Novâ Hollandiâ.

LUPROPS, n. g. Helopidarum.

Labium retuso-truncatum. *Palpi labiales* 3-articulati, articulo 1mo minimo, 3tio subfusiformi. *Caput* anticè utrinque angulariter productum, antennis sub angulo insertis. *Tarsi* dilatati.

LUPROPS CHRYSOPHTHALMUS. *Lupr. ater; oculis auratis; thorace elytrisque punctatissimis; tarsis infrà flavo-pubescentibus.*
Long. 5 lin.; lat. 1¾.
Hab. in Indiâ Orientali.

Lamia Roylii. *Lam. nigra; antennis corpore longioribus; elytris mucronatis, basi scabris, maculis octo albis notatis.*
Long. 28 lin.; lat. 8¾.
Hab. in Nepâl.

Lamia Crux nigra. *Lam. straminea; thoracis nigro, vittis tribus luteis; elytris maculâ cruciformi nigrâ alterisque duabus rotundatis aurantiis notatis.*
Long. 11 lin.; lat. 4.
Hab. in Africâ. (Sierra Leone.)

Prionus Hayesii. *Pri. nigro-brunneus; thorace marginato multispinoso; mandibulis porrectis, quadridentatis; pedibus anticis valdè elongatis.*
Long. 4⅓ unc.; lat. ad humeros, 12 lin.; elytrorum, 17.
Hab. in Africâ.
This magnificent insect is not surpassed in size by any Coleopterous species with which Mr. Hope is acquainted.

Prionus Cumingii. *Pri. ater; thoracis bifoveolati angulo antico utrinque dilatato hamato; elytris varioloso-tuberculatis.*
Long. 27 lin.; lat. ad humeros 8, elytrorum 12.
Hab. in Chili. (Concepçion, Valparaiso.)

Prionus Pertii. *Pri. ater; capite oblongo; thorace nigro; elytris castaneis; femoribus piceis; tarsis ferrugineis.*
Long. 12 lin.; lat. 4.
Mr. Hope proposes as a generic name for this insect, *Dissosternum.* Its *prosternum* is produced between the anterior legs, and deeply incised, so as to form two strong processes.

Uracantha, n. g. Stenocoro affine.

Antennæ 11-articulatæ, articulo ultimo ad apicem acuto. *Corpus* lineari-oblongum. *Elytra* 2-dentata. *Pedes* simplices.

Uracantha triangularis. *Ur. brunnea; thorace albo lineato, tuberculato; elytris albo-pubescentibus, apicibus bidentatis lateribusque purpureo-fuscis.*
Long. 14 lin.; lat. 3.
Hab. in Novâ Hollandiâ.

Scolecobrotus, n. g. Uracanthæ affine.

Antennæ 12-articulatæ, erosæ, articulo ultimo scalpelliformi subserrato. Cæterum *Uracanthæ* simillima.

Scolecobrotus Westwoodii. *Scol. flavo-ferrugineus; elytris basi punctulatis, ad apicem bidentatis.*
Long. 14 lin.; lat. 3.
Hab. in Novâ Hollandiâ.

June 11, 1833.

John Cole, Esq., in the Chair.

A specimen of the *Patagonian Penguin*, *Aptenodytes Patachonica*, Gmel., recently presented to the Society by Lady Rolle, was exhibited. Mr. Yarrell availed himself of the opportunity to point out on it the proofs which it afforded of the statement made by him at the Meeting on March 12, (page 33,) that the *woolly Penguin* of Dr. Latham is the young condition of this species.

A specimen was exhibited of a *Goose* from the Sandwich Islands, being one of a pair recently living at the Society's Gardens, to which they were presented by Lady Glengall. Mr. Vigors characterized it as a species of *Barnacle Goose*, by the name of *Bernicla Sandvicensis*, and pointed out its distinguishing marks. He also observed on the general resemblance in the distribution of colouring which occurs in the species of *Bernicla* and in those of many other groups of *Birds*.

Numerous skins of *Birds* were exhibited, which had recently been obtained by the Society from California. They formed part of the collection, the *Mammalia* of which were brought under the notice of the Society by Mr. Bennett on March 26. Mr. Vigors remarked on them generally as regarded the geographical distribution of many of them; and pointed out, as apparently hitherto undescribed, an *Ortyx*, a *Falco*, two species of *Coccothraustes*, and a *Psittacara*. Among the known birds were several of those first described by Mr. Swainson in the 'Fauna Boreali-Americana,' and a specimen of *Ortyx Montezumæ*, Vig.

Dr. Grant directed the attention of the Meeting to a fine entire skull of the *round-headed Grampus*, (*Delphinus globiceps*, Cuv.,) from the North Pacific Ocean, presented to the Society by Capt. Delvitte, R.N., Corr. Memb. Z.S. He availed himself of the opportunity of entering into some details regarding the osteology of the head of the *Grampus* and other predaceous *Cetacea*. The inferiority of these *Mammalia*, so obvious in many of their more important internal organs, is strikingly illustrated by the smallness of their cranial development, compared with the length and magnitude of the bones of the face, and with the entire bulk of the body. The extension of the face and its horizontal direction in the carnivorous *Cetacea*, the similarity of the form and the alternate disposition of the teeth as in *Crocodiles*, and the shortness and immobility of the neck as in the latter aquatic *Reptiles*, form a striking contrast when compared with these parts in the herbivorous species, and indicate their uses as organs adapted for prehension. Although the teeth of the *Grampus* and other *Dolphins* have the usual recurved conical form and want of opposition of those of *Fishes* and *Reptiles*, and are liable to an early disappearance from the jaws, they are lodged in deep *alveoli*, and are accompanied with a fixed condition of all the bones of the face as in *Gavials*, *Crocodiles* and *Alligators*, in order to afford a stronger resistance during the conflicts of these animals with living prey. The great extension of the intermaxillary bones raises the nostrils to the crown of the head, and enables the animals to breathe without raising their large head above the water, or bending backwards their very short neck. The extension backwards of their strong upper jaw-bones over the cranial cavity, and the inclination upwards and forwards of their flat occipital bone from the horizontal position of the head, produce a remarkably compressed ridge across the *vertex* of the skull, and incline the occipital *foramen* of the *Grampus* upwards and forwards as in the above-mentioned *Reptiles*. The parietal bones being thrown to the lateral parts of the *cranium*, and the frontal bone forming a narrow band across the head, the occipital bone almost touches the upper jaw bones along this transverse ridge, and presents an extensive surface for the attachment of the strong muscles connecting the head to the spine. The coarse fibrous and spongy texture of the bones, and the thickness of the *parietes* of the *cranium*, are further analogies with *Reptiles*, and the want of perforations in the ethmoid bone for olfactory nerves, shows a deficiency of one important organ of sense.

Dr. Grant adverted to the want of symmetry in the bones of the head, which is so remarkable in the animals of this genus, and stated that in examining lately the large collection of skeletons and skulls of blowing *Cetacea* in the Cabinet at Paris, he found scarcely one which did not exhibit an increased development of the right side of the head, frequently twisting the nostrils so considerably to the left side that the streams directed through these passages must have fallen at some distance from the body of the animal. The left side is generally less developed in *Mammalia* than the right, and it appears to be the reverse in *Birds*, where the development of the ovary and oviduct is always checked on the right side. These phænomena may depend on the different position of the descending *aorta* in the two classes, and its influence on the nervous and other systems along its course. The unity of plan in the development of the head of piscivorous *Cetacea* is remarkably illustrated by the discovery of teeth in the lower jaw of the *fœtus* of the toothless *Balæna*. The whole proportions of the bones of the head and trunk of the *Grampus* are massive and strong, and indicate an animal possessed of great muscular strength, and a most formidable antagonist to the gigantic whales of the Arctic Seas.

He observed that the feeble attachment of the slender jugal bones and of the petrous and tympanic portions of the temporal bones, generally causes them to disappear, as in the present instance, in macerating the skulls of *Cetacea*. But such donations as this were most valuable to the Society, as objects of comparison both for recent and extinct species of animals but little known and difficult of access, and as specimens rarely to be obtained by any other means.

Specimens were exhibited of two *Monkeys*, forming part of the Society's Museum, which Mr. Bennett characterized as follows:

SEMNOPITHECUS NESTOR. *Semn. saturatè cinereus; capite, prymnâ, femoribus posticè, caudâque pallidioribus, illo fusco tincto, hac ad apicem, mystacibus longioribus, labiis, mentoque albidis; facie, auribus, manibusque nigris; artubus nigrescentibus.*

Long. *corporis* cum capite, 16; *caudæ*, 20 unc.

Hab.

The prevailing colour is a deep grey with a slight tinge of brown, becoming paler on the back of the neck and on the head, where the fuscous tinge is much more marked. On the loins the deep grey passes into a pure light grey, which is continued on the hinder part of the thighs and along the tail; the tail becomes gradually lighter in colour, and is for several inches at the tip almost white. In passing down the limbs the prevailing grey becomes gradually darker, the colour of the hands being nearly black. The under parts are somewhat lighter than the upper, particularly about the throat. Passing upwards from the throat the colour becomes much lighter, owing to a greater proportion of the lower part of the hairs being exposed. Hence the lips, the chin, and the whiskers are nearly pure white, the tips of the latter, which are prolonged backwards, being alone grey. Over the eyes is the ridge of stiff black hairs, which is usually met with in the *Semnopitheci*.

The hairs are of moderate length, measuring about an inch and a half.

The moderate length of the hairs, the somewhat lighter colour, and especially the white of the lower part and sides of the face, distinguish this species from *Semn. leucoprymnus*.

It may be assumed to be a native of India; but the dealer of whom it was purchased knew not whence it was obtained.

CERCOPITHECUS POGONIAS. *Cerc. nigrescens, albo punctulatus; dorso medio, prymnâ, caudâ supernè et ad apicem, fasciâque temporali nigris; fronte, scelidibusque externè flavidis, nigro punctulatis; mystacibus longissimis, albido-flavescentibus; corpore caudâque subtùs, artubusque internè, flavido-rufis.*

Long. *corporis* cum capite, 17; *caudæ*, 24 unc.

Hab. ad Fernando Po.

The hairs of the upper surface are black, ringed with whitish, producing a grizzled appearance, which occupies the back part of the head, the fore part of the back, the sides, the outer surface of the anterior limbs, and the posterior hands. In the middle of the back commences a broad black patch, which extends to the tail, and is continued along its upper surface for about two thirds of the length of that organ, the remaining portion being black both above and below. On the forehead the hairs are yellowish ringed with black; a few black hairs occupy the middle line; and on each side passing from above the eye to the ear is a broad patch of black. The whiskers expand very broadly on each side of the face; the hairs composing them are yellowish white, occasionally but very sparingly ringed with dusky black. The ear has internally a long tuft of hairs of the same colour with those of the whiskers. The outer side of the hinder limbs, the hands excepted, is yellowish grizzled with black, their colour being intermediate in intensity between the lightest portion of the sides and the whiskers. The under surface of the body, the insides of the limbs, and the under surface of the proximal two-thirds of the tail, are reddish yellow.

In colouring, this species differs remarkably from every known *Monkey*.

The specimen is without a skull.

A specimen was exhibited of the *black Lemur, Lemur niger,* Geoff., which had recently been added to the Society's Menagerie. In calling the attention of the Society to it, Mr. Bennett stated his belief that this was the first individual of the species which had fallen under the observation of zoologists since the days of Edwards, its original describer, who saw and figured one which was living in 1755 in the possession of a surgeon in London. The description and figure given by Edwards have consequently been hitherto the only proofs of the existence of such an animal.

Mr. Bennett added that the *black Lemur* is the type of the *Lemur Macaco,* Linn.; and that the *Vari,* to which the name of *Lem. Macaco* has been applied by modern authors, is given by Linnæus as the Var. d. of that species. Custom having, however, transferred the specific name to the variety, he deemed it better to acquiesce in the use which has obtained, leaving to the *Vari* the name of *Lem. Macaco,* and to the *black Lemur* that of *Lem. niger.*

Specimens were exhibited of various *Mammalia, Birds,* and *Reptiles,* from the continent of India, which had been recently presented to the Society by Thomas Heath, Esq. Mr. Bennett observed on the several objects, pointing out especially the more interesting among them. They included an individual apparently referrible to the *Semnopithecus cucullatus,* Isid. Geoff. St.-Hil., although darker in all its markings than is indicated in the description given by the original observer of the species. They also included a species of *Felis,* of a size intermediate between the larger and the smaller animals of that genus, and having in its grey colour and longitudinal striping a general external resemblance to some of the *Viverræ.* This Mr. Bennett regarded as new to science, and proposed to designate it

FELIS VIVERRINUS. *Fel. fulvo-cinereus, subtùs albescens; capite, nuchá, dorso, genis, guláque nigro vittatis; lateribus, ventre, pedibusque nigro maculatis.*

Long. *corporis* cum capite, 33 unc.; *caudæ* mutilæ, 7; *auriculæ,* 1¼.

The prevailing colour of the upper surface is a rather deep yellowish grey, the separate hairs being dusky at the base, yellowish in the middle, and having short black tips. The black lines and spots are formed of hairs destitute of yellow, and having the black tips of much greater length. A longitudinal black band passes on each side, from the inner *canthus* of the eye above the ear nearly to the shoulder; a second, more internally, passes to the same distance backwards, and is somewhat interrupted anteriorly; and between this and its fellow on the *vertex* is the vestige of a median line, which on the forehead is broken up into a double row of spots; these and the two adjoining lines subdivide in front into numerous very small spots between the eyes. Two black lines pass downwards obliquely on either side from below the eye, over the angle of the jaw; and from their terminations on each side there passes a transverse band across the throat: the space between these lines is nearly white, as is also a stripe over each eye, and the whole of the under jaw and chin. There is a large black spot surrounding the base of the ear posteriorly, and the ear is also tipped with black. The long, linear markings of the back are disposed in about five interrupted, longitudinal bands, and some of the spots on the sides assume a linear form. Of these the most remarkable are, one on each side of the neck, and an oblique wavy band on the shoulder. The spots on the sides generally approach a rounded shape, and form, posteriorly, four or five interrupted longitudinal rows. Those of the under surface are larger, and are arranged without order. On the fore limbs the spots are small externally, and internally there are on each two large transverse black patches. On the hinder limbs the spots are arranged so as to form interrupted transverse bands on both surfaces. The hairs of the soles of the feet are dusky brown. The tail is spotted above in the same manner as the sides; its colour beneath is uniform. The spots are throughout numerous. The whiskers are white, and take their origin from three black lines on either side.

The species is nearly allied to *Felis Serval*, Schreb., but will readily be distinguished by the characters above given, by the comparative shortness and strength of its limbs, and by the locality whence it was obtained.

Specimens were exhibited of three species of *Toucan*, hitherto apparently undescribed, which form part of the Society's Museum. At the request of the Chairman, Mr. Gould pointed out their distinguishing characteristics. He described them as

RHAMPHASTOS SWAINSONII. *Rhamph. ater; vertice nuchâque rufo tinctis; gutture luteo, abdomen versus lineâ albâ alterâque coccineâ cincto; tectricibus caudæ superioribus albis, inferioribus coccineis.*

Long. 18 unc.; *caudæ*, 6½; *alæ*, 9; *tarsi*, 1½. *Rostri* long. 5½; alt., 2½; *culminis* ad basin lat., 1½.

Hab. in montosis Columbiæ.

The pure whiteness of the upper tail-coverts is an important character of this bird; but its most distinctive feature is in the markings of its bill, which presents three distinct and contrasted colours, disposed obliquely from the base to the point. The base of the lower part of the upper mandible, as well as the entire base of the under, is of a rich salmon colour, bounded by a narrow line of black on the upper mandible, the point of the lower being entirely of the latter colour; the remainder of the upper mandible, from the forehead to the point, is of a rich orange yellow. The bare space round the eyes is of a blueish lead colour.

In one specimen which has fallen under Mr. Gould's observation, the salmon colour towards the base of the mandibles is entirely wanting, its place being occupied by a dull black, only less intense than that of the oblique line which borders it, and which passes from near the *culmen* at the base of the bill to the edge of the gape at about one third from the tip.

In the colours of its plumage this bird agrees so completely with *Rhamph. ambiguus*, Swains., (Zool. Illust. pl. 168,) as to induce a suspicion of their specific identity. But unless the colours of the bill and their disposition have been incorrectly observed by the artist whose drawing was used by Mr. Swainson, the two birds may be regarded in these particulars as really distinct.

RHAMPHASTOS CULMINATUS. *Rhamph. ater; gutture pectoreque albis; fasciá pectoris posticá tectricibusque caudæ inferioribus coccineis; uropygio sulphureo, plumis versus apices in aurantium transeuntibus.*

Long. 18–20 unc.; *caudæ*, 6½–7; *alæ*, 8½–9; *tarsi*, 2. *Rostri* long., 4–5; ad basin lat., vix 1.

Hab. in Mexico.

The bill is black, with a broad line of pale straw yellow running the whole length of the *culmen*, from which a band of the same colour passes downwards encircling the base of both mandibles.

This species resembles the *Rhamph. Cuvieri*, Wagl., which appears to Mr. Gould to be synonymous with *Rhamph. Erythrorhynchus*, the bill of which, he states, changes its colour according to the season from a brilliant scarlet to black.

PTEROGLOSSUS HYPOGLAUCUS. *Pter. olivaceo-brunneus, subtùs cæruleo-canus; vertice, occipite, caudâque nigris, rectricibus quatuor intermediis ad apicem brunneis; remigum pogoniis externis viridibus, internis brunneis; uropygio lutescente; tectricibus caudæ superioribus viridi-olivaceis.*

Long. 18¼ unc.; *caudæ*, 7; *alæ*, 6¾; *tarsi*, 1¾. *Rostri* long. 4; alt., 1¼; lat. ad basin, 1¼.

Hab.

The varied colouring of this bird, and particularly the uniform silvery blueish grey of its under surface, afford a ready distinction of it from all the other *Toucans*. Its upper mandible is edged on its basal aspect by a narrow line of yellow, succeeded by a triangular spot of black; then follows an irregular mark of yellow, edged by a narrow irregular black line; the rest of the upper mandible throughout the whole of its *culmen* and sides is deep blood red: the lower mandible, for the basal half of its length, has the yellow and black colouring of the upper, but instead of terminating in red, this colour is exchanged for deep black.

The exhibition was resumed of the new species of *Shells*, forming part of the collection made by Mr. Cuming on the western coast of South America, and among the islands of the South Pacific

Ocean. Those exhibited on the present occasion were accompanied by characters by Mr. G. B. Sowerby.

Genus Triton.

Triton clathratus. *Trit. testâ oblongâ, turritâ, crassâ, albidâ, fusco maculatâ; anfractibus octo, decussatim sulcatis, granosis; suturâ crenulatâ; varicibus irregularibus, crassis, transversim sulcatis, longitudinaliter striatis; aperturâ subovatâ, margine internâ labii externi denticulatâ, labio columellari granuloso: long.* 1·2, *lat.* 0·6 *poll.*

Hab. ad Insulam Annaa.

Found on the reefs.—G. B. S.

Triton nitidulus. *Trit. testâ turritâ, crassiusculâ, politâ, fuscescente, maculis saturatioribus variis pictâ; anfractibus decem, inferioribus lævibus, superioribus longitudinaliter granoso-striatis; labio columellari lævissimo; varicibus albicantibus: long.* 1·5, *lat.* 0·5 *poll.*

Hab. ad Insulam Annaa.

Found on the reefs.—G. B. S.

Triton distortus. *Trit. testâ oblongo-turritâ, crassiusculâ, roseo-albicante, fusco maculatâ et nebulosâ; anfractibus undecim irregulariter tortuosis, seriatim graniferis, infra suturam crenulatis; varicibus secundis, lævibus, anticè granulosis; labio columellari anticè expanso, granuloso; margine internâ labii externi denticulatâ: long.* 1·6, *lat.* 0·6 *poll.*

Hab. ad Insulam Annaa.

Found on the reefs.—G. B. S.

Triton reticulatus. *Trit. testâ turritâ, acuminatâ, fuscescente, maculis nebulisque saturatioribus pictâ; anfractibus decem reticulatis, suturâ impressâ; varicibus reticulatis; margine internâ labii externi dentatâ; labio columellari anticè rugoso: long.* 1·3, *lat.* 0·4 *poll.*

Hab. ad Insulas Gallapagos.

Found under stones.—G. B. S.

Triton Mediterraneus. *Trit. testâ turritâ, acuminatâ, fuscescente, maculis nebulisque saturatioribus, nonnunquam strigisque pictâ; anfractibus novem, reticulatis, suturâ distinctâ; varicibus elevatis, latere dorsali profundè impresso, lineis transversis elevatis; margine internâ labii externi dentatâ; labio columellari anticè ruguloso: long.* 1·, *lat.* 0·35 *poll.*

Hab. ad oras Siciliæ.

This nearly resembles the last. It is placed here in order that the differences between the two may be seen by a comparison of the descriptions.—G. B. S.

Triton Ceylonensis. *Trit. testâ turritâ, gracili, pallescente, fusco maculatâ et variegatâ; anfractibus undecim, anticis octo reticulatis, suturâ subinconspicuâ; varicibus depressis; aperturâ oblongâ, margine labii externi internâ denticulatâ, peritremate reflexo, anticè dilatato; labio externo expanso: long.* 1·65, *lat.* 0·55 *poll.*

Hab. ad Insulam Ceylon.—G. B. S.

Triton lineatus. *Trit. testâ turritâ, crassâ, pallescente, fulvo variegatâ; anfractibus novem, obsoletè transversim sulcatis, sulcis brunneis, interstitiis granulosis; varicibus obtusis; aperturâ oblongâ, labio externo intùs sulcato; labio interno anticè reflexo, incrassato; columellâ rugulosâ: long.* 2·6, *lat.* 1· *poll.*

Hab.

Much larger than any of the others. These seven may be regarded by some as mere varieties of *Trit. maculosus* of Lamarck, although I am fully satisfied of their being perfectly distinct species. I am, however, of opinion that it matters not whether they be regarded as species or varieties, seeing that it is equally necessary to describe them all particularly.—G. B. S.

Triton decollatus. *Trit. testâ oblongo-subturritâ, pallescente, fusco variegatâ; apice retuso; anfractibus quinque, primis duobus reticulatis, reliquis ventricosis, transversim sulcatis, sulcis brunneis, interstitiis planiusculis; suturis distinctis; varicè unico; aperturâ ovatâ, peritremate crenato; labio interno anticè reflexo, incrassato: long.* 1·, *lat.* 0·4 *poll.*

Hab. ad Insulam Annaa.

Found on the reefs, and easily distinguished from all the above by the fact of its being decollated and by its having only a single *varix.*—G. B. S.

Genus Bulinus.

Bulinus discrepans. *Bul. testâ oblongâ, subacuminatâ, albicante, nitidiusculâ; anfractibus quinque vel sex gibbosiusculis, lineis fuscis, obliquis irregulariter pictis, transversis duabus inferioribus subdistantibus; aperturâ subovatâ, supernè subacuminatâ: long.* 0·7, *lat.* 0·33 *poll.*

Hab. sub cortice arborum in Americâ Centrali.

This was found at Conchagua; it is somewhat similar to *Bul. nitidus*, but upon comparison may easily be distinguished.—G. B. S.

Bulinus calvus. *Bul. testâ oblongâ, subturritâ, pallescenti-brunneâ; anfractibus septem breviusculis, rotundatiusculis; aperturâ ellipticâ, margine internâ incrassatâ; umbilico mediocri: long.* 0·6, *lat.* 0·25 *poll.*

Variat nonnunquam lineâ spirali albicante.

Hab. ad Insulas Gallapagos.

Found on dried tufts of grass on James's, one of the Gallapagos Islands.—G. B. S.

Bulinus ustulatus. *Bul. testâ oblongâ, subacuminatâ, fusco-nigricante; anfractibus sex vel septem gibbosiusculis, lineis nonnullis pallescentibus pictis; aperturâ ellipticâ, columellâ crassiusculâ, albicante, margine acutâ: long.* 0·6, *lat.* 0·3 *poll.*

Variat nonnunquam lineâ spirali pallidâ.

Hab. ad Insulas Gallapagos.

Found under detached pieces of lava on Charles's, one of the Gallapagos Islands.—G. B. S.

Bulinus pallidior.—*Bul. testâ oblongâ, subacuminatâ, totâ albicante; anfractibus sex, gibbosiusculis, ultimo maximo, inferioribus posticè marginatis; aperturâ oblongâ, intùs pallidè brunneâ,* *peritremate reflexo, anticè expanso, umbilicum mediocrem suboccultante: long.* 1·6, *lat.* 0·7 *poll.*

Mr. Cuming obtained two specimens of this species in South America, but without being able to ascertain its locality.—G. B. S.

Bulinus Luzonicus. *Bul. testâ oblongâ, subacuminatâ, albâ; apice obtuso, brunnescente; anfractibus quinque, lævibus, planulatis, inferioribus fusco cingulatis; aperturâ infrà rotundatâ, peritremate reflexo, cingulo fusco intùs notabili.*

Hab. ad Insulam Luçon, Philippinarum.

Two specimens of this very beautiful species are in Mr. Cuming's collection, both of which have only one dark brown band; a single specimen was among Mr. Humphrey's shells, which had three bands; he had called it *Chersina abbreviata.*—G. B. S.

Bulinus conspersus. *Bul. testâ ovato-subacuminatâ, tenui, corneâ, apice obtusiusculo; anfractibus sex, rotundatis, albido guttulatis et lineatis; aperturâ ovatâ, coloribus concoloribus pictâ; peritremate acuto, tenui; umbilico parvo: long.* 0·65, *lat.* 0·4 *poll.*

Hab. in collinis prope Lima.

Found buried in the earth under bushes on the hills around Lima. Two varieties abound there, of which one is more ventricose than the other.

Bulinus albus. *Bul. testâ ovato-ventricosâ, albâ, ore nonnunquam carneo; apice obtuso; anfractibus quinque, rotundatis, lævibus, suturâ distinctâ; aperturâ ovali, peritremate tenui, acuto; umbilico minimo: long.* 0·8, *lat.* 0·5 *poll.*

Variat punctulis corneis conspersâ.

Hab. in arenosis prope Copiapo.

Found in a sandy plain under bushes at Copiapo.—G. B. S.

Bulinus striatulus. *Bul. testâ oblongo-acuminatâ, albicante, subfusco tessellatâ; apice obtusiusculo; anfractibus sex vel septem, rotundatis, longitudinaliter striatis, striis elevatiusculis, exilibus; aperturâ oblongâ, peritremate tenui, acuto: long.* 0·9, *lat.* 0·45 *poll.*

Hab. in collinis prope Lima sub lapidibus.—G. B. S.

Bulinus decoloratus. *Bul. testâ oblongâ, subacuminatâ, albidâ, tenuissimâ; anfractibus quinque vel sex, longitudinaliter striatis, gibbosiusculis, cingulis nonnullis interruptis fuscescentibus; aperturâ ovali, margine acutâ; umbilico minimo: long.* 0·5, *lat.* 0·25 *poll.*

Hab. sub frutices prope Lima, Peruviæ.

Found buried in the earth under bushes on the hills around Lima.—G. B. S.

Bulinus unicolor. *Bul. testâ oblongâ, corneâ, tenui, apice obtuso; anfractibus sex, ventricosis, striatis, suturis distinctis; aperturâ ovatâ, margine tenui, acutâ; umbilico parvo: long.* 0·8, *lat.* 0·3 *poll.*

Hab. ad Insulam Perico in Sinu Panamensi.

Found on dead leaves.—G. B. S.

Bulinus Jacobi. *Bul. testá oblongá, tenui, fuscá, nonnunquam albido bilineatá; anfractibus sex, ventricosis, minutissimè granosis, granulis seriatis; suturá profundè impressá; aperturá ovatá, peritremate tenui, labio interno partim supra umbilicum magnum expanso; long.* 0·55, *lat.* 0·3 *poll.*

Hab. ad Insulam Jacobi, inter Gallapagos.

Found under scoriæ.—G. B. S.

Bulinus scabiosus. *Bul. testá oblongo-pyramidali, brunneá, apice saturatiore, albido guttatá et maculatá; anfractibus septem subventricosis, suturá leviter impressá; aperturá subovali, peritremate tenui; umbilico parvo.*

Hab. ad Cobijam sub lapidibus.

This species resembles *Bul. pupiformis*; it is, however, much smaller and differently proportioned.—G. B. S.

Specimens were also exhibited from the same collection of two species of *Cirripedes*, apparently hitherto undescribed. They were characterized by Mr. G. B. Sowerby as follows:

Pollicipes ruber. *Poll. testá irregulariter subtrigoná, rubrá, anticè subtùsque pallidiore; valvis superioribus majoribus, planulatis, subtrapeziformibus, supernè acuminatis; dorsali magno, sagittato, dorso rotundato-carinato; pedunculo squamulis minimis obtecto.*

Hab. apud Inner Lobos Island, ad littora Peruviæ.

This species is generally from 2 to 3 inches long; it is remarkable for the form and colour of the upper pair of valves and the dorsal valve. The interstices of the valves also are of a deep blood-red colour.—G. B. S.

Pollicipes polymerus. *Poll. testá obtusè subtrigoná; valvis lævibus, substriatis, superioribus quatuor majoribus convexis, subtrapeziformibus, apice posticè acuminato, basi subtruncato, reliquis plurimis plerumque subtrigonis; pedunculo squamulis minimis resupinatis obtecto.*

Hab. ad oras Californiæ.

The remarkable characters of this species are, the great number of small valves, and the minute scales of the peduncle being all placed with their *apices* downwards.—G. B. S.

Preparations were exhibited of the stomach and *cæcum* of two species of *Semnopithecus*, F. Cuv., *Semnn. Entellus* and *fascicularis*. They were obtained from individuals which recently died in the Society's Gardens.

Mr. Owen called the attention of the Society to these preparations in illustration of a Paper which he read "On the Sacculated Form of the Stomach in the *Monkeys* of the Genus *Semnopithecus*, F. Cuv." He referred to M. Otto as the first observer of this peculiar structure among the *Monkeys*, that eminent anatomist having described and figured it in the 'Nova Acta Academiæ Cæsareæ' (tom. xii. p. 511.), as it exists in a species to which he gave the name of *leucoprymnus*, placing it doubtingly among the

Cercopitheci, although it now seems by general consent to be regarded as a *Semnopithecus*. From its existence in M. Otto's species, and in the only two species of *Semnopithecus* which Mr. Owen has had opportunities of dissecting, the latter gentleman is disposed to consider it as appropriated to the genus, which may consequently be now regarded as established on anatomical as well as on zoological and geographical grounds.

The stomach of the *Entellus Monkey* (taken from an individual 1 foot 8 inches in length from the mouth to the *anus*) measured along the greater curvature, 2 feet 7 inches; along the lesser curvature, 1 foot: its greatest circumference was 1 foot and half an inch; its least circumference, 8 inches and two thirds. It may be regarded as consisting of three divisions: 1. a cardiac pouch, with smooth and simple *parietes*, slightly bifid at the extremity; 2. a middle, very wide, and sacculated portion; 3. a narrow elongated canal, sacculated at its commencement, and of simple structure towards its termination. The latter, from its greater vascularity and the more abundant distribution of the nerves of the eighth pair, Mr. Owen regards as the true digestive stomach; the two former divisions being rather to be considered as preparatory receptacles. Mr. Owen described the several portions in detail, and explained their physiology respectively, especially with respect to their fitness for performing a function analogous to rumination. He remarked, however, that while he referred to them, for the sake of perspicuity, as three principal divisions, it was necessary to observe that they are not characterized, like the stomachs of *Ruminants* or *Cetacea*, by any essential difference of structure, none of them possessing a cuticular lining.

The stomach of the *Croo Monkey* had precisely the same structure as that of the *Entellus*, but was smaller in proportion to the size of the animal. The individual from which it was obtained was much younger than the *Entellus*.

Mr. Owen referred to the displacement of some of the abdominal *viscera*, particularly of the liver, in consequence of the great development of the stomach. He also adverted to the length of the intestines, and by a tabular view of the measurements in the two *Semnopitheci*, in a *Cercopithecus*, and in a *Macacus*, he showed that notwithstanding the complication of the stomach in the former genus, the small intestines were proportionally longer than in the other two; the ratio being in *Semnopithecus*, eight to one; in *Cercopithecus*, six and a half to one; and in *Macacus*, four to one.

The stomach of *Semnopithecus* was carefully compared with that of the *Kangaroo*, and with that of the *Sloth*; both of which are well known to be remarkable for their complication. These were exhibited, as was also a preparation of the complicated stomach of a species of *Pteropus*.

In conclusion Mr. Owen inquired, what are the natural habits and food of these *slow Monkeys*, as M. F. Cuvier denominates the *Semnopitheci*? Will they be found to resemble those of the *Sloths*? Is their food more herbaceous than that of the *Monkeys* generally? This, he conceives, is highly probable; and that the enlarged capacity of the stomach enables them to carry off great quantities of herbage to masticate at their leisure, the great development of these receptacles compensating at once both for the absence or rudimentary condition of the cheek pouches and for the less nutritious quality of the food.

Col. Sykes reminded the Society that, in submitting his Catalogue of the *Mammalia* observed in Dukhun, East Indies, he took occasion to comment on the popular error respecting the ferocious and untameable disposition of the *common Hyæna*, *Hyæna vulgaris*, Cuv. His opinions were founded partly on observation of a cub which he had domesticated, and partly on facts communicated by his friends. He went on to state as follows:

"Two years have elapsed since I placed in the Gardens of the Society the above-mentioned cub (a female), which has now attained its full growth, and I am happy to be enabled to confirm the opinions I formerly advanced. In India it was allowed to run about my house, and on board ship it was released from its cage two or three times a day, to play with the sailors and gambol with the dogs. It early recognised my person and voice, and would obey when called; and in general was as playful and good-humoured as a puppy. My visits to it in the Gardens have been rare, and at long intervals, nor have I ever carried it food; I anticipated, therefore, that it would outgrow its early associations, and that I should be to it as any other stranger; but it has always greeted me not only as an acquaintance, but as an old friend; and if I am to judge from its agitation and peculiar cries, the animal's recognition is that of affection.

"On Sunday last it was asleep in its cage when I approached. On calling to it by its name it looked up, distinguished me in the crowd, started on its legs, and on my applying my hand to its mouth to smell to, it threw itself down against the bars, rubbed its head, neck, and back against my hand, and then started on its legs and bounded about its cage, uttering short cries. On ceasing to speak to it, and moving away, it stopped, and looked wistfully after me, nor resumed its motions until I addressed it again. Its manifestations of joy were so unequivocal, as to excite the surprise of a great number of bystanders. As these pleasing traits in the disposition of a calumniated animal appeared so new to those who surrounded me on that occasion, they may possibly be deemed of sufficient interest to be worthy of extended promulgation by record in our Proceedings.

"I take occasion to repeat my conviction, that association with man, constant kindness, and abundance of food, will suffice not only to modify, and indeed eradicate, the worst traits in the disposition of any animal of the higher classes, but give birth to others of which their natures were not deemed susceptible."

June 25, 1833.

Richard Owen, Esq. in the Chair.

Extracts were read from a letter addressed to the Secretary by W. Willshire, Esq., Corr. Memb. Z.S., dated Mogadore, May 5, 1833. It referred to various animals of Marocco which Mr. Willshire is in expectation of procuring for the Society. It also stated the opinion of the writer that "the *M'horr Antelope* [recently described by Mr. Bennett as a distinct species,] will be found to be of the same race as the *Nanguer* of Senegal;" Mr. Willshire "having traced the existence of the *M'horr* to Whadden (or Hoden on the maps), and even further to the southward, thus approaching near to Senegal." Mr. Willshire adds that he considers that "the *Antilope Leucoryx* is almost beyond a doubt the *Bekker-al-wash* of the Arabs of this neighbourhood."

Mr. Willshire forwarded at the same time the following account of the method practised in dressing skins in Marocco, the results of which are excellent as regards the preservation and colour of the fur and the flexibility of the pelt.

"Wash the skin in fresh water to deprive it of the salt; as soon as this is done scrape the flesh off; when take

"2 lbs. alum,
"1 quart buttermilk,
"2 or 3 handfuls barley meal,

"which mix well together, and lay on the fleshy side of the skin equally; fold up and press it together carefully, and let it lie two days. On the third day take it to the sea side, wash the skin well, and when clean and free from the mixture, hang it up to let the water run from it: then take 2 lbs. rock alum finely powdered, and throw or spread it equally on all parts of the skin; again fold up as before, and allow it to lie three days, when it will be in a proper state to dry in the sun, laid flat without taking away the powder. When it is dry, take a pint or two of fresh water and sprinkle it upon the skin, and again fold it up carefully for about two hours to imbibe the water; then lay it on a table, and after scraping it free from the mixture and flesh, take a sand stone (rather rough) and rub the skin well until it becomes soft and pliable, then hang it in the shade to dry. The process is then complete.

"When the skin is perfect, having the head, horns, &c., take off the horns and fill their cavity with a mixture of equal parts of powdered alum and ashes of charcoal, dissolved in water, and expose them two days to the sun. Saturate the trunks of the horns with 8 ounces of alum dissolved in water, and fold up with the skin, and apply the same on each occasion when employed in curing the skin. The flesh on the head and jaws to be carefully taken off, filling the same with powdered alum. It should remain in the sun until perfectly dry.

"In addition to the foregoing description of the mode used in this country in dressing skins, as related by the person employed by me, it may be well to observe that the process does not take so long here, as I have often received back skins of the *Aoudad* and *Leopard* from the dresser, on the third or fourth, and never exceeding the fifth day, perfectly cured. Allowance has been made by the dresser, in the foregoing description, for the difference in the climate of London.

"The skins of smaller animals must not be subjected to so lengthened a process, or they will become harsh, and the pelt impoverished.—W. W."

A brief description was read of a pair of *Doves*, now living at the Society's Gardens, which had been pointed out by Mr. Vigors as representatives of a species hitherto undescribed. It may be characterized as follows:

COLUMBA PRINCEPS, Vig. *Col. suprà cinerea, subtùs alba; nuchâ rufo-castaneâ, metallicè splendente, scapulas versus vinaceâ; gutture viridi, metallicè splendente; caudâ suprà cacaoticâ, infrà pallidiori.*

Hab. in Australiâ.

This bird exceeds by one fourth the size of the *Wood Pigeon* of Europe. Its beaks and legs are crimson, and its *irides* hazel.

Dr. Grant exhibited a preparation of the *cloaca* of a female *Condor*, *Sarcorhamphus Gryphus*, Dum., which recently died at the Society's Gardens. He entered into a series of observations on the subject, demonstrating the differences of structure and appearance existing in its several parts, and the several orifices opening into it. He adverted to the imperfect development of the right oviduct and ovary in the class of *Birds*, and considered it as probably dependent on the position of the *aorta* in that class. To the position of the *aorta* in the *Mammalia* he was also disposed to attribute the inferior powers of the left side of the animals composing that class, an inferiority which is very striking in the cranial structure of the *Cetacea*, to which he had occasion to refer at the last Meeting of the Society. He dwelt particularly on the *bursa Fabricii*, remarkably evident in this large bird, and explained the several uses which had been attributed to that organ by its discoverer and by subsequent anatomists. With M. Geoffroy-Saint-Hilaire he regarded it as the analogue of Cowper's glands in the *Mammalia*, and adduced various reasons in favour of this view.

Mr. F. D. Bennett exhibited a dried preparation of the upper *larynx* and adjoining parts of the *Albatross*, *Diomedea exulans*, Linn., for the purpose of demonstrating the existence in that bird of an *epiglottis*.

The *rima glottidis* is bounded by two elevated fleshy lips, which consist of mucous membrane and some few muscular fibres, and are armed with retroflexed *spiculæ*. These lips are in perfect contact at the hinder part of the *glottis* when it is closed, but diverge near their anterior part so as to leave a triangular open space of about the size of a pea, the edges of which are incapable of being approximated to each other. In front of this triangular aperture, and at some distance behind the tongue, (to which it is connected by mucous membrane and muscular fibres,) is an elevated substance of a soft leathery texture, resembling that of the *epiglottis* of *Mammalia*: its form is triangular, the *apex* being inferior and connected with the tongue, and the base being elevated and terminating in three thin convex portions or lobes. The middle one of these lobes is the largest; it is free, and rests immediately over the triangular orifice of the *larynx* just described, which, when depressed, it is in size adapted to cover. In a line continuous with the floor of the upper *larynx* and penetrating deeply beneath the *epiglottis* is a cavity or sac lined with mucous membrane.

Having demonstrated these parts on the preparation exhibited by him, Mr. F. D. Bennett added that as it had been the opinion of naturalists in all ages that no bird possesses an *epiglottis*, the structure which he had brought under the notice of the Society appeared to him highly interesting. So fixed was the opinion to which he had adverted that when Warren showed the existence in the *Ostrich*, *Struthio Camelus*, Linn., of a structure which he regarded as an *epiglottis*, the denomination was generally rejected even in this anomalous *bird*, and the part was considered as a mere elevation at the base of the tongue, a rudiment, but without the function, of the organ. In the *Albatross*, however, the function is that of an *epiglottis*; and the size, though small, is sufficient for the protection of that portion of the *rima glottidis* which cannot be closed in the manner usual in *Birds* by the apposition of its margins. With a peculiar structure of the *glottis* there exists an apparatus equally peculiar in the class, as a provision against the inconvenience which might otherwise result from the deviation from the normal structure.

Mr. F. D. Bennett also exhibited several specimens of a species of *Pyrosoma* captured by him, on the 6th September 1832, at sea, in lat. 1° 41′ N., long. 11° 56′ W. Between 2 and 4 A.M. the sea, having been two hours before less luminous than usual, presented one mass of bright phosphoric light extending to a considerable distance around the vessel. The extensive field of bright luminous matter emitted so powerful a light as to illuminate the sails, and to permit a book of small print to be read with facility near the windows of the stern cabins. Above this luminous field numerous sea fowl were hovering in search of their prey. The light appeared to be entirely owing to the *Pyrosomata*.

Specimens taken from the sea and placed in a vessel containing sea water, ceased altogether to emit light, or emitted it but sparingly while they remained at rest. On the water, however, being agitated, or when one of the masses of animals was taken into the hand, the whole mass became instantly illuminated by myriads of bright dots, much resembling in hue the points on the *elytra* of a *diamond Beetle*, *Curculio imperialis*, Fab.

The *Pyrosoma*, thus enveloped throughout its whole extent in a flame of bright phosphorescent light gleaming with its peculiar hue, presented a most splendid spectacle; the light shed by it was sufficient to render objects distinctly visible in every part of an otherwise dark room. If long retained in the hand, or returned to a quiescent state in the water, the luminous spots gradually faded, and no light was visible until the animal was again disturbed, when the illumination instantly returned with all its vivid splendour. After death it emitted no light.

The mass of *Pyrosoma*, of the usual cylindrical form and gelatinous substance, was about 4 inches in length and 1½ in circumference. The tube, passing along its middle, is described as being open at both ends; the orifice at the broader extremity being much better defined in its circular form, larger, and more distinct than that of the opposite end. The surface of the mass appeared to be studded with numerous prominent rigid and pearly tubercles intermingled with small specks of a brown or red colour. In these latter the power of emitting light appeared chiefly to be seated, these being frequently bright while the remainder of the body exhibited only its natural white or yellowish white hue; a hue which changed after death into a red tinge. The brown specks, when removed from the body, did not emit light.

A "Description, with Additional Particulars, of the *Apteryx Australis* of Shaw," by Mr. Yarrell, was read. It described in greater detail than the communication made by the author on February 12, (page 24,) the external structure of this singular bird. It also observed on its probable habits, and on its place in the natural series in immediate relation with the *Struthionidæ*. Following up the history of our acquaintance with it, which commenced with the possession by Dr. Shaw of a single perfect skin (hitherto unique and brought under the observation of the Society by the kindness of the President, of whose collection it now forms part), Mr. Yarrell referred to the incidental notices of it by Captain Cruise, M. Lesson, M. Duperrey, and M. Gaimard, and from the evidence thus collected pointed out its locality to be Mount Ikou-Rangui, near East Cape, New Zealand, and its native name to be *Kiwi*, frequently doubled, according to the custom of the natives, into *Kiwi-Kiwi*. With this information it is hoped that some of our enterprising countrymen in that quarter may, ere long, succeed in acquiring additional specimens and additional knowledge, as regards both the habits and the structure of this curious race.

July 9, 1833.

Thomas Bell, Esq., in the Chair.

A letter was read, addressed to the Secretary by Charles Telfair, Esq., Corr. Memb. Z.S., and dated Port Louis, February 25, 1833. It gave an account of the history of a gigantic living specimen of the *Indian Tortoise*, *Testudo Indica*, Linn., which has recently been presented to the Society by Lieut. General Sir Charles Colville, late Governor of the Mauritius. The specimen is one of those which were brought from the Seychelles Islands to the Isle of France in 1766, by the Chevalier Marion du Fresne; and is believed to have since remained unchanged in size and appearance. Its length, measured along the curve of the back, is 4 feet 4½ inches; its breadth, taken in the same manner, 4 feet 9 inches; the length of its *sternum*, 2 feet 8 inches; the breadth of its *sternum*, 2 feet 1½ inch. Its weight is 285 pounds.

An extract was read from a second letter from Mr. Telfair, of the date of Feb. 26, referring to an animal known in the interior of Madagascar by the name of *Sokinah*. Mr. Telfair regards it as an undescribed species of *Tenrec*, *Centenes*, Ill. A specimen of a very young individual, which was transmitted in spirit by Mr. Telfair, was exhibited, and compared with young specimens of the *European Hedge-hog*, *Erinaceus Europæus*, Linn., and of the *half-spiny Tenrec*, *Centenes semi-spinosus*, Ill. Its extreme youth, however, precluded the possibility of satisfactorily characterizing it. It was born in confinement, and lived for seventeen days; its parents having escaped from their cage on the night of its birth.

A letter was read, addressed to the Secretary by R. J. Bourchier, Esq., Corr. Memb. Z.S., dated Malta, June 8, 1833. It contained an account of two *Vultures*, *Vultur Kolbii*, Daud., (the *Chasse-fiente* of Le Vaillant,) which have recently been presented to the Society's Menagerie by Sir Thomas Reade, Corr. Memb. Z.S., His Majesty's Consul at Tunis. Mr. Bourchier also adverted to his attempts to procure for the Society living *Bustards* from Northern Africa. Although the birds are secured without much difficulty, his attempts have been hitherto unsuccessful, owing to the impossibility of keeping them alive in confinement for any considerable length of time, so inveterately sulky is their nature. He proposes to endeavour to obtain them at a very early age; or, if possible, to procure their eggs and have them hatched under a *domestic Turkey*.

A specimen was exhibited of the Indian variety of the *Nilotic Crocodile*, *Crocodilus vulgaris*, Cuv., obtained in Vellore, and presented to the Society by Alexander Bain, Esq. At the request of the Chairman, Dr. Harlan explained the structure of the heart and the course of the circulation in the *pike-headed Alligator*, *Alligator Mississippensis*, which he had described in detail in the 'Journal of the Academy of Natural Sciences of Philadelphia.'

Specimens of various objects of zoology, collected by George Bennett, Esq., Corr. Memb. Z.S., during his late voyage to New South Wales and in that colony, were exhibited. They were transmitted by Mr. G. Bennett to the Royal College of Surgeons, and the exhibition was made with the permission of the Board of Curators of the College Museum. They included a portion of a *Flying-fish*, to a parasite on which several *Barnacles* (*Cineras*, Leach,) were attached: several *Mollusca*: a river *Lobster*: portions of the *Death Adder*, &c. &c. They also included the *uterus* of a *Kangaroo*, "showing the fœtus with a *placenta* attached, contained within it." Mr. Owen, by whom the preparations were brought under the notice of the Society, and who remarked on each of them as they were severally presented, observed on this that he had not yet examined it sufficiently to determine the structure of the umbilical appendage visible in the preparation. It was accompanied by sketches by Mr. G. Bennett of the fœtal *Kangaroo in utero*, which were exhibited.

The preparations were accompanied by a letter addressed by Mr. G. Bennett to Mr. Owen, and dated Sydney, New South Wales, February 4, 1833, from which several extracts were read. Among them was the following:

"I have a section of one female *Ornithorhynchus* which I shot, in which the milk gland is very large; and I can now inform you from actual observation that milk is secreted from it: it comes out (as your mercury did when you injected the ducts,) in small drops on the surface of the skin. I intend sending you a further account of this; but you can mention it to the Zoological Society as a decided fact; and which had also been seen by some intelligent gentlemen in this country;—but I was not satisfied to assert it until I became an eye-witness of the fact. I wish you to show the specimens to the Zoological Society, with some brief comments in my name, stating also that I am about to send home a detailed account of the habits and œconomy of the *Ornithorhynchus* and *Kangaroo*."

The exhibition was resumed of the new species of *Shells* contained in the collection made by Mr. Cuming on the western coast of South America, and among the Islands of the South Pacific Ocean. Those brought on the present evening under the notice of the Society were accompanied, as on previous occasions, by characters by Mr. Broderip and Mr. G. B. Sowerby. They comprehended the following species of the

Genus CARDIUM.

CARDIUM CUMINGII. *Card. testâ æquivalvi, tumidâ, fragili, roseâ, diaphanâ, egregiè cancellatâ, anticè rugosâ, valvis posticè hiantibus; cristâ anticâ subalbidâ ab umbonis latere postico ad mar-*

ginem ventralem extensâ, in utrâque valvâ: alt. $\frac{8}{10}$, *lat.* $\frac{9}{10}$, *long.* 1 *poll.*

Hab. in Americâ Centrali. (Gulf of Dulce.)

This beautiful bivalve, rosy, transparent, and exquisitely wrought, was found by Mr. Cuming, whose name it bears. It was obtained from sandy mud, at a depth of twelve fathoms.

Pellucid, and with the valves separated posteriorly like the *Anatinæ*, with a crest so identical in form and structure with that of some of the *Mactræ* as to leave no doubt that this appendage is secreted in the same manner as it is in the latter genus,—*Cardium Cumingii* has the teeth and hinge of *Cardium*, and approaches so closely in many points to *Cardium bullatum* or *soleniforme* and others of that division, that, in the absence of all assistance which might be derived from investigating the anatomical structure of the animal, I do not feel justified in separating it from them.

Every one conversant with the subject has observed how very variable the teeth are in the genus *Cardium*. We have an edentulous *Cardium* (*Card. Grœnlandicum*), and another, a fossil species, entirely destitute of lateral teeth on one side. Whether this genus does not require revision is a question into which I shall not now enter. Certain it is that it comprehends a very great variety of external form and structure.—W. J. B.

Cardium procerum. *Card. testâ ovatâ, dorso acuminatiusculo, pallidâ, fusco maculatâ, anticè rotundatâ, posticè subangulatâ; costis radiantibus* 25, *anticis quatuor primis obsoletiusculis, reliquis prominentibus, posticè angulatis, subrugosis; medianis planulatis, utrinque obtusè anguliferis; posticis anticè angulatis; insterstitiis planulatis; latere postico ringente, dentibus marginalibus validis; epidermide fuscâ: long.* 3·3, *lat.* 3·1, *alt.* 3·9 *poll.*

Hab. in Americâ Centrali. (Real Llejos.)

Found in coarse sand in from four to six fathoms water.—G. B. S.

Cardium Orbita. *Card. testâ obovali, pallescente, fulvo variegatâ; anticè rotundatâ, posticè subangulatâ; costis radiantibus* 42, *anticis rotundatis, transversim costatis; medianis utrinque granosis, granis posticis majoribus; posticis posticè granosis, granis obliquis dentiformibus; interstitiis, præcipuè medianis, profundis; cardinis dente laterali antico maximo: long.* 2·5, *lat.* 2·3, *alt.* 3·3 *poll.*

Hab. ad Insulam Annaa in Oceano Pacifico.

Found in fine coral sand on the reefs.

Cardium planicostatum. *Card. testâ subcordiformi, pallescente, fusco fulvoque variegatâ; anticè rotundatâ, posticè truncatâ, rotundato-angulatâ; areæ posticæ medio prominulo; costis radiantibus* 30, *planulatis, acutimarginatis, anticis transversim costellatis, posticis posticè crenulatis, omnibus creberrimè transversim striatis; umbonibus prominentibus; depressione profundâ sub umbonibus anticè conspicuâ: long.* 1·4, *lat.* 1·2, *alt.* 1·6 *poll.*

Hab. ad oras Americæ Centralis. (Guacomayo.)

Found in fine sand, at a depth of thirteen fathoms.

This species resembles *Card. medium* in its general form and appearance, but may easily be distinguished by a careful attention to the above characters.—G. B. S.

CARDIUM OBOVALE. *Card. testá obovali, altiore quàm longá, albá, lateribus brevissimis, antico paulò longiore; medio ex umbone ad marginem inferam rotundato-carinato; costis radiantibus 22, lateralibus depressiusculis, anticis posticè crenulatis, medianis supernè transversim rugosis, interstitiis omnibus transversim striatis; dente laterali antico ad cardinem propiùs admoto: long.* 0·55, *lat.* 0·55, *alt.* 0·8 *poll.*

Hab. ad oras Americæ Meridionalis. (Xipixapi.)

Found in sandy mud at eleven fathoms depth.

A species very remarkable for the peculiarity of its general form; its length and breadth being equal, and its height much greater.—G. B. S.

CARDIUM ELATUM. *Card. testá ovali, obliquá, lævigatá, ventricosissimá, flavâ; sulcis radiantibus plurimis, medianis, præter posticis, obsoletis; areá laterali, posticá, anticáque lævibus, marginibus edentulis; marginibus ventralibus dentatis; epidermide tenui: long.* 4·, *lat.* 3·5, *alt.* 4·5 *poll.*

Hab. ad Guaymas in Sinu Californiensi.

Found in sandy mud at low water.

This is the largest species of *Cardium* which I am acquainted with, its dimensions sometimes far exceeding those given above. It belongs to the same group in the genus as *Card. lævigatum*, *Card. serratum*, *Card. sulcatum*, &c.—G. B. S.

CARDIUM SENTICOSUM. *Card. testá suborbiculari, compressiusculá, albidá, purpurascenti-fusco variegatá; costis radiantibus* 39—40, *tredecim anticis anticè graniferis; demum* 2—3 *utrinque graniferis; reliquis posticè angulatis, graniferis, granis obliquis, posterioribus majoribus; interstitiis omnibus angustis, transversim striatis; latere postico ringente, dentibus marginalibus validis, purpurascentibus: long.* 1·5, *lat.* 1·1, *alt.* 1·5 *poll.*

Hab. ad Sanctam Elenam, Americæ Meridionalis.

Found in sandy mud at from six to twelve fathoms depth.

Very like *Card. muricatum*, but differing from it in being orbicular, in having more ribs, and in the form of the little grains upon the ribs.—G. B. S.

CARDIUM MULTIPUNCTATUM. *Card. testá ovali, obliquá, depressiusculá, lævi, politá, roseo-fulvá, maculis punctisque plurimis saturatioribus; striis radiantibus confertissimis; margine posticá dorsali subangulatá: long.* 1·3, *lat.* 0·8, *alt.* 1·5 *poll.*

Hab. ad littora Chinæ.

Only two specimens of this rare and beautiful species are in Mr. Cuming's collection.—G. B. S.

CARDIUM UNIMACULATUM. *Card. testá cordiformi, albá, maculá sanguineá posticá; valvis valdè convexis, carinatis, cariná dentatá; latere antico productiore, tumidiusculo; latitudine* 0·55 *longitudinem duplo superante, alt.* 0·6 *poll.*

Variat interdum immaculatum.

Hab. ad Insulam Annaa in Oceano Pacifico.

At first I took this for the young of *Card. Cardiscæ*, but find it differs in several particulars, and there are a great number of specimens exactly alike.

Found in fine coral sand on the reefs in great abundance.—G. B. S.

Cardium Consors. *Card. testâ obovali, turgidâ, altiore quàm longâ, pallescente, fusco-rufescente marmoratâ, radiatim multicostatâ; costis confertim squamosis, squamis fornicatis, anterioribus marginibus reflexis, posterioribus porrectis; intùs purpurascenti-fuscâ: long.* 2·, *lat.* 2·2, *alt.* 2·6 *poll.*

Hab. ad Sanctam Elenam et ad Guacamayo.

Collected in sandy mud at from six to eleven fathoms.

The number of ribs in this species is 34; they are more numerous and more closely set together than in *Card. Isocardia*, which it otherwise much resembles.—G. B. S.

Cardium laticostatum. *Card. testâ rotundatâ, subventricosâ, posticè subangulatâ, ringente, pallidâ, fusco maculosâ, radiatim costatâ; costis anticis medianisque latis, rotundatis, posticis angulatis; interstitiis angustis: long.* 1·7, *lat.* 1·3, *alt.* 1·7 *poll.*

Hab. in Sinu Xipixapi.

Found in sandy mud at the depth of eleven fathoms.—G. B. S.

Cardium maculosum. *Card. testâ obovali, subventricosâ, posticè subdeclivi, marmoratâ, radiatim costatâ; costis anticis planatis marginibus crenatis, posticis rotundatis; interstitiis anticis angustissimis: long.* 1·9, *lat.* 1·5, *alt.* 2·5 *poll.*

Hab. ad Insulas Tres Marias, in Sinu Californiensi.

Found on the sands.—G. B. S.

Cardium Panamense. *Card. testâ obovali, granticè rotundatâ, posticè subangulatâ, ringente; costis radiantibus anticis medianisque latis, magnis, primùm angulatis, demùm rotundatis, posticis angustioribus anticè crenatis: long.* 1·5, *lat.* 1·4, *alt.* 1·9 *poll.*

Hab. ad Panamam.

Found in sandy mud at a depth of ten fathoms.—G. B. S.

Cardium aspersum. *Card. testâ longitudinaliter ovali, posticè hiante, pallidâ, rufescente marmoratâ, serratâ; lateribus subæqualibus; costis radiantibus numerosis, lateralibus crenulatis, medianis planulatis: long.* 1·6, *lat.* 0·75, *alt.* 1·2 *poll.*

Hab. ad Sanctam Elenam et ad Montem Christe.

Found in sandy mud at seven fathoms depth.

This resembles *Card. soleniforme*; by comparison, however, it is easily distinguished.—G. B. S.

Cardium multistriatum. *Card. testâ obovali, pallidè fulvâ, rufo punctulatâ; striis radiantibus numerosis, anticis decussatis, posticis subgraniferis: long.* 0·8, *lat.* 0·7, *alt.* 0·9 *poll.*

Hab.

Only one specimen was found.—G. B. S.

Dr. Grant communicated the following extract from a letter which he had received from Dr. Coldstream, of Edinburgh:—

"Torquay, (Devon,) Nov. 10, 1832.—Today I examined the *ova* of *Sepia officinalis*. A group of eighteen was attached (each by a ring formed of its semigelatinous coats) to a leaf of *Zostera marina*. They were of an elongated oval shape, about 1 inch in length and $\frac{4}{10}$ths in breadth; colour black, shining; consistence soft. Tunics of the *ovum* very numerous, of various thickness, arranged concentrically. When these tunics were removed in succession until the *ovum* became transparent, I saw distinctly the contained fœtus and its yelk within the inner coat. I could see it move and respire. When the egg was gently pressed, it moved briskly. I succeeded in getting the inner membrane with the contained fœtus out of the egg entire. I kept one in this state in sea-water for many hours, at the end of which time no change had taken place. Others I opened, and let out the fœtus; at first preserving it in its own fluid. Its only evident motion was that of respiration performed with more or less activity, according to the degree of disturbance given to it. When at rest, the respirations were thirty two per minute. The sac was dilated, and the funnel raised as in the adult; and from the transparency of the mantle, I could see plainly the motions of the lateral valves. The surface was marked with several spots; proportionally, not so numerous as in the adult. These seemed to me to become larger after the removal from the egg; but I saw no contraction and dilatation similar to what occurs in the adult. The yelk at first adhered to the front of the body, being placed between the arms; but I could not see how it was attached. In a short time it dropped off. It seemed to consist of a very thin membrane, inclosing a homogeneous transparent jelly. The lateral fin was broad, and, when the animal moved, had much wavy motion. When touched, before the yelk separated, the sac was contracted, raised, and a sharp expiration took place. The same, after separation of the yelk, was sufficient to make the animal move backwards a short distance. When salt-water was mixed with the fluid in which the fœtus floated, the animal, at first, appeared uneasy, drew its mantle over its eyes, and breathed quickly. This agitation, however, soon subsided, and there seemed to be additional vigour imparted. Viewed ventrally, the ink bag's silvery coats were seen shining through the mantle; and when the animal was touched, it twice or thrice ejected minute streams of ink. Whole length of the fœtus $\frac{4}{10}$ths of an inch. The eyes were very large proportionally. The suckers on the arms appeared only as minute tubercles. The shape of the yelk was nearly spherical; diameter about $\frac{2}{10}$ths of an inch.

"Nov. 12.—The fœtus taken out of its egg on the 10th instant was, on the same evening, put into salt water, which happened to be muddy; it continued to respire, and appeared well all the evening; but afterwards its sac contracted so as to allow the lateral valves to be seen outside, and it was languid: next morning it was dead. Today I dissected it. The shell was found loosely imbedded in the mantle. It was $\frac{2}{10}$ths of an inch in length; white; in shape ovate; thickest at the narrow end, where it was almost opaque; composed of five concentric layers; outermost very thin, translucent, spotless; others marked with variously shaped spots; near the margin of the shell these were simple [roundish, oval, or oblong]; towards the centre more complex [elongated and variously but slightly branched]. Internally, I found the gills distinctly, and, to all appearance, perfectly formed. The ink bag contained a considerable quantity of very deep-coloured ink. The inferior pair of arms were very broad at their base, and furnished with a fin-like expansion.

"The fœtus which I laid aside (in salt water), covered with the inner coat only (that membrane being entire), I found this morning outside of it and dead. I opened others of the group of eggs, and found every fœtus dead. Some had ejected part of their ink within the egg. In some the amniotic fluid was, in part, gelatinous. The spots were distinctly visible on the skin of the mantle, head, and arms; yellowish brown beneath; darker above."

Mr. Cox read a Paper "On the Circumstances which modify the Existence of Animals in Northern Regions." He dwelt on the migrations of these animals, chiefly in search of food, which in the countries they usually inhabit could scarcely be obtained during the winter months. When the spring returns, and the supply of nutriment becomes abundant, plethora and consequent disease would probably result; but this, the author conceives, is provided against partly by the expenditure of the animal forces for the purposes of generation, and, in the *Ruminants* with deciduous horns at least, by the extra supply of blood required for the renovation of these organs. The horns of the several species of *Deer*, Mr. Cox remarked, appear to be large proportionally with the extent to which the variation in the deficiency and abundance of food at different seasons of the year prevails; those of the extreme north being much more heavy and branched than those of the animals of more temperate regions; and the branching being at its minimum in the *Deer* of India. In still warmer countries and in tropical regions, *Deer* almost cease to exist, their place being occupied by *Antelopes*, *Ruminants* with persistent horns; a provision quite in accordance with the assumed law that the growth of horn is designed to employ superabundant blood produced by excess of nourishment at one period of the year, these animals in which the horns are continually growing having constantly at their disposal food in sufficient and nearly equable quantity.

July 23, 1833.

William Yarrell, Esq. in the Chair.

A letter was read, addressed to the Society by W. Williamson, Esq., dated Scarborough, July 2, 1833. It contained a full description of a specimen of the *garrulous Roller*, *Coracias garrula*, Linn., which was shot in the previous week in a limestone quarry near that place. The description was that of a female in nearly adult plumage.

A specimen was exhibited of the *Irish Hare*, recently presented to the Society by Mr. Yarrell, who pointed out the characters by which it is distinguished from the *common Hare* of England and the Continent of Europe. Its head is shorter and more rounded; its ears still shorter than its head; and its limbs less lengthened. The fur also differs essentially from that of the *common Hare*, and is useless as an article of trade. Mr. Yarrell added, that he had lately brought a specimen of it under the notice of the Linnean Society.

At the request of the Chairman, Dr. Stark exhibited the skeleton of the *edible Frog*, *Rana esculenta*, Linn., and stated that this species is found in the neighbourhood of Edinburgh, whence his specimen was obtained. He pointed out some of the differences between its osseous structure and that of the *common Frog*, *Rana temporaria*, Linn.

Dr. Stark also stated that he had obtained in the neighbourhood of Edinburgh specimens of a species of *Stickleback*, *Gasterosteus*, Linn., not previously known to exist in Great Britain.

In answer to a question on the subject, Dr. Stark described the changes produced in the colour of various *Fishes*, both of fresh and salt water, but especially in *Minnows*, *Leuciscus Phoxinus*, Cuv., in consequence of their being kept in water contained in vessels of different colours; the tendency of the fish being to assume the colour of the vessel in which it is kept.

The stomach and *cæcum* of a *Squirrel Monkey*, *Callithrix sciureus*, Geoff., which recently died at the Society's Gardens, were exhibited. At the request of the Chairman, Mr. Martin read his notes of the dissection of the animal.

" The length of the body in this individual was 10 inches; that of its tail, 14.

" On opening the *abdomen*, the *viscera* were observed to occupy the usual situation, and presented nothing remarkable in their general aspect.

"The liver consisted of three lobes on the right and two on the left side. On the under surface of the first of the lobes belonging to the right portion, so as to be entirely concealed, was situated the gall bladder. In shape this organ was oval, and ¾ of an inch in length. Its duct, nearly 1 inch in length, entered the *duodenum* about ⅓rd of an inch from the *pylorus*, being joined ¼th of an inch before its entrance by the hepatic duct. The bladder was full of green bile.

"The *pancreas* began distinct and narrow, closely adherent to the pyloric portion of the stomach on its dorsal aspect, and ended in a broad irregular mass, surrounded by the first curve of the *duodenum*. The length, when dissected away and extended, was 1¾ inch.

"The spleen, of a prismatic form, lay closely attached to the cardiac portion of the stomach, by which it was almost wholly concealed. Its length was 2 inches.

"The small intestines measured 3 feet in length: their circumference was 1 inch: their texture thin and transparent.

"The large intestines measured 1½ inch in circumference, and were firmer than the small intestines: their surface was smooth and uniform, being destitute of longitudinal bands, or *sacculi*. In length they measured 6½ inches.

"The *cæcum*, 1½ inch in length, was pointed and recurved. Several mesenteric glands were clustered around the junction of the small and large intestines.

"The stomach was large, somewhat globular, having the cardiac portion developed, and the pyloric short. The measurement of the larger curve was 5 inches and 2 lines. The *omentum* was small and very thin.

"The kidneys, of which the right was rather the highest, were oval in shape, with a depression at the spot where the vessels enter. Their cortical substance was very thin and not very distinct. Their length was 1 inch. The urinary *tubuli* entered the *pelvis* by a single *papilla*. Renal capsules of the size of peas were closely attached. The ureters entered the bladder on its posterior aspect, two thirds from the *fundus*.

"The *uterus* was small. The ovaries were about the size of tares. The *clitoris* was ½ an inch in length, pointed, and like a *penis* pendent from the *symphysis pubis*.

"The lungs had two lobes on the left side and three on the right: those on the left side were healthy; but those on the right were diseased, adhering to the *pleura costalis*, which was highly inflamed and covered with a coating of coagulable lymph. On cutting into the lobes one was found to be completely disorganized, and filled with caseous matter; the other two were in a state of active inflammation, having a firm fleshy feel and appearance, the cells being filled with lymph. The lining membrane of the *larynx* and *bronchi* appeared healthy.

"The tongue was pointed, and on its basal portion were three *papillæ*, placed so as to form the three points of a triangle, the *apex* pointing towards the gullet, and being distant ¼ inch from the *glottis*: the length of the tongue was 1¼ inch.

"The *epiglottis* was broad and indented on the anterior edge.

"The thyroid gland was single, of an oval form, and nearly ⅜ths of an inch in length.

"The heart was broad, and its *apex* blunt."

Colonel Sykes exhibited several specimens of *Loligo sagittata*, var. β, Lam., which came on board the Lady Feversham on his passage to England in 1831. He read the following extracts respecting them from his journal.

"Monday, April 3, 1831.—Lat. 22° 20′ S., long. 1° 52′ E.—Three specimens of *Loligo sagittata* leaped on board at sun-set on the forecastle, which the men saw, the trade wind being so light at the time as to threaten a calm.

"Two days afterwards, in lat. 18° 6′ S., long. 3° 12′ W., several other individuals of the same species were found at daylight on the poop, having come on board during the night, the wind having been steady and the sea smooth."

Col. Sykes stated that his object in bringing the specimens under the notice of the Society, was to point out the locality from which they were obtained, the habitats given by Lamarck being the European and American seas; and to direct particular attention to the leaping powers of the animal, which he believed to have been hitherto unobserved. He added that he was unable to satisfy himself as to the organization by which it was enabled to throw itself above the surface of the sea.

Mr. Owen mentioned as an additional instance of the existence of this power in the *Loligo sagittata*, that two specimens were preserved in the Museum of the Royal College of Surgeons, to which they were presented by Dr. Henderson as having leaped on board a vessel in the Mediterranean.

Dr. Grant again called the attention of the Society to his specimen of *Loligopsis guttata*, Grant, and to specimens of *Sepiola vulgaris*, Leach, for the purpose of explaining more fully the anatomical structure of these species, which he had exhibited, with *Sepiola stenodactyla*, Grant, at the Meetings on February 12 and March 26. He gave a detailed account of their anatomy, which he illustrated by reference to an extensive series of diagrams prepared by himself. These diagrams have been engraved on a reduced scale for publication in the Society's Transactions.

In the *Loligopsis* the *parietes* of the mantle are remarkably thin and loose, excepting where they are supported by the dorsal transparent *lamina*, and by two thin cartilaginous *laminæ* extending from the free edge of the mantle about half-way down the sides, and placed rather towards the ventral surface of the animal. These lateral *laminæ* present an appearance anomalous in *Cephalopods*. Each of them sends out twelve or thirteen conical tubercles, about a line in diameter at their base, and projecting to the distance of a line beyond the general surface of the mantle.

The *viscera* occupy but a small portion of the cavity of the mantle, in which they are placed far backwards, the *branchiæ* themselves not extending forwards beyond the middle of the sac. The liver is divided, as in *Nautilus*, into four principal lobes, which are quite separate from each other; but the lobules which compose these lobes are not, as in the *Testaceous Cephalopod*, detached from each other. The branchial arteries are surrounded, before entering the auricles, by a spherical cluster of vesicles, like those which open into these vessels in *Nautilus*; but the auricles are not, as in *Nautilus*, wanting: they are, however, destitute of those singular *appendices* usually found attached to these muscular sacs in the *Naked Cephalopods*. The *branchiæ* are single on each side, and are proportionally the smallest which Dr. Grant has yet met with. The systemic ventricle is very muscular, aud of a lengthened fusiform shape: it has an aortal trunk at each end. On the large dorsal or descending *aorta* there is, as in *Nautilus*, a distinct bulbous enlargement, probably the commencement of a *bulbus arteriosus*.

In *Sepiola*, in addition to the usual dorsal *lamina* which is thin and short, there exist, external to the mantle and supporting the fins, two firm crescentic cartilaginous plates, like *scapulæ*, playing freely on the outer surface of the mantle, and furnished with an outer and an inner layer of muscles, passing in the form of minute white *fasciculi*, from the middle of the dorsal part of the mantle: by this structure, great extent and effect are given to the motions of these powerful dorsal arms, which have thus a singular resemblance in their mode of attachment to the anterior extremities of *Vertebrata*.

The cavity of the mantle is comparatively small, and its whole extent is occupied by the *viscera*, which are largely developed, particularly the digestive organs, the ink gland, and the two glands of the oviducts. The ink gland is remarkable for its form as well as its magnitude. It consists of three longitudinal lobes placed transversely, and extending more in that direction than lengthwise. The two lateral lobes are kidney-shaped; the third or middle lobe is smaller, and from its upper part the duct arises.

The Secretary read a communication from M. Geoffroy-Saint-Hilaire, entitled "New Observations on the Nature of the Abdominal Glands of *Ornithorhynchus*," in which the author states it to be his purpose to reply to the observations of Mr. Owen on that subject, contained in the Proceedings of the Society, under date of the 12th of March in the present year (page 30).

"The question no longer regards merely the simple fact, *whether*, decidedly and absolutely, the *Monotremata* are *viviparous*, or *oviparous*; whether we should reason upon them according to the rules of *the past*, and apply to them the entire character of *Mammalia*; or whether we are not compelled to see in them sufficient anomalies to embrace them in views *of progress*.

"Let us state the case more precisely. There is but one single consideration to be discussed; viz. whether the gland on each side of the *abdomen* is mammary and lactiferous (as Mr. Owen thinks), or whether it is not a gland of a different kind (as I, for my part, believe). I call it a gland *sui generis*, and have lately proposed to denominate it *Monotrematic*, as it attains its *maximum* of composition among the *Monotremata*.

"Is it a mammary gland? Mr. Owen's concessions militate strongly against this conclusion; for it is not conglomerate, it is not invested with an erectile tissue, and it is without nipples. In Meckel's time the appearance of the latter was hoped for, the nipples being frequently developed under the action of sucking; but at present this can no longer be anticipated. Females have been seen in full nutritive action, in New South Wales, by Lieut. Lauderdale Maule and Mr. James M'Arthur, and at London by Mr. Owen himself; and each observer has insisted on the circumstance that there were no *nipples*.

"Thus the fact of a decidedly assimilated *structure* is wanting: the gland of *Monotremata* is not in its composition comparable with a mammary gland. But I observe that I am answered here by a fact of an assimilated *function*. Lieut. Maule and Mr. M'Arthur speak of an abundant secretion, *milky* according to one, of a *milky appearance* according to the other. It is therefore inferred that there remains at least this character (the *function*) in common, to prove mammary a gland of a different structure. But, I may reply, begin by being certain that the product of the secretion is a true *milk*; do not introduce an unknown to characterise a new organ of a structure hitherto equally unknown. What! the organ is not in its composition mammary, and yet its secretion is *lacteal*! What would become, then, of the principle, *Such as the organ is, such necessarily is its function*?

"The vascular system does not go the length, as in conglobate glands, of folding itself round, of mutually anastomosing, and of penetrating itself in obedience to the law of affinity of *self for self* (*de soi pour soi*); whence, at the proper period, a compound fluid—milk. But this vascular system, as in mucous membranes, extends its terminating branches into cavities with an external exit. From this more simple apparatus I expect a fluid in itself more elementary—mucus, as I suppose.

"But I do more than believe this by way of conjecture: I offer this demonstration of the fact. On the [illegible] of June I laid before the Academy of Sciences, of which I am this year President, a paper on the existence of a gland in all respects similar to that which is described and figured Phil. Trans. 1832, pl. [illegible], fig. 2 and 3 by Mr. Owen in the *Echidna*—a Monotrematic gland consequently, which I have observed in the *Water-Rat* (*Mus amphibius*, Linn.). I subjoin the figure of this gland magnified, and invite a comparison of this drawing with that of Mr. Owen's plate.

"I begged of our learned chemist, M. Thenard, Member of the Academy of Sciences, to analyse the product of the secretion of the monotrematic gland of the *Water-Rat*: his researches [illegible] that it is not milk. M. Dumas has obtained this result still more positively by microscopic observations. Each of these products is invariable in its form: milk has the appearance of perfectly spherical globules; while the matter from the gland of the *Water-Rat* exists under the form of thin flakes strongly angular at the edges. The mucus of the *saliva* presents the same aspect, except that the edges of the flakes are not so deeply indented. The result is, that the glandular secretion furnished by the *Water-Rat* appeared to us to be *mucus* mixed with a small proportion of fatty odorous matter; and there can be no doubt that the same is the case with the secretions of the glands of the *Shrews*.

" Now there remains an experiment to be made by the Zoological Society, but principally by Mr. Owen, animated like myself with zeal for scientific truth; and which I invite my colleagues to make. Alcohol does not alter the form of the elementary molecules, either of milk or of *mucus*. Mr. Owen has deposited in the Museum of the College of Surgeons his anatomical preparations; it is easy, without damaging the preparations, to take from the monotrematic apparatus a small quantity of its secretion, and to place it in the field of a microscope. An answer will thus be obtained, of which I admit beforehand all the consequences.

" The negative characters indicated above, (*no conglobate tissue, no erectile tissue, no nipples,*) are remarkable concessions on the part of Mr. Owen. He might have advanced still further in the same direction, and not have accepted, for example, from Lieut. Maule his milky fluid only, reserving himself to combat afterwards what that observer says *de visu* of the shells in the nest, and rejecting also the opinion of the country in favour of the oviparous character of the *Monotremata*.

" But I will not return here to all the accessory points of the controversy: I pass to Mr. Owen's observations in reply.

" Firstly, To destroy the effect of the analogy of the glands of the *Shrews*, to which I had referred the glands of the *Monotremata*, Mr. Owen cites the authority of Von Baer, who in the Archives of Anatomy and Physiology, published at Leipzig in 1827, p. 168, had combatted my views, in order to support the opinions of his friend and fellow-countryman Meckel, remarking that, proceeding from analogy to analogy, that of the *Cetacea* must also be taken into consideration. Von Baer says that the structure of the glands of the *Ornithorhynchus*, as described and figured by Meckel, reminded him in all particulars of the mammary glands of the *Cetacea*; and actually refers to a similar arrangement in the *Porpoise*. Now, adds this learned anatomist, 'it has never entered into the mind of any man to deny the *Porpoise* to be a lactiferous animal.' It is true that nobody has hitherto raised a doubt on this point; but it would not be by any means extraordinary if we were obliged to do so now, if it were certain, as I believe, that the monotrematic glands of the *Ornithorhynchus* give rise to a new mode of nutrition as regards the young. For if this were the fact, the *Cetacea* would participate in this new mode, in these new functions, which it will become ulteriorly necessary to determine better, inasmuch as offering an intermediate generation, viz. between that proper to the *Monotremata*, and a third sort, that of the *Ovoviviparа*, (that is to say of the *Sharks* and *Rays*,) the eggs of which are hatched either within or without the body of the mother, they would furnish facts of the same rank as those of the vipers and other snakes, and would not offer such important characteristic differences between all these animals, as have hitherto been uniformly believed to exist. I refrain from proceeding further in order not to overpass the boundaries of analogies and of truth; but it might happen that the objection proposed by Von Baer should lead to this result; not that the *Monotremata* should be thrown back into the centre of the *Mammalia*, but that the *Cetacea* should be separated from among them. The affinity of structure, if it be such as the German physiologist announces, may lead to an idea that the mode of nutrition which I have sketched for the *Monotremata* may be equally adapted to the *Cetacea*. Formerly one mode only was known, and it was supposed *à priori* that the *Cetacea* must have passed through it. At all events it is necessary to revise the doctrine of the nutrition of the *fœtus* of *Cetacea*.

"Secondly, Mr. Owen points out the contradictoriness of my two opinions in two papers published at an interval of less than a month, and this is fair play in his capacity of critic. Nevertheless I had scarcely touched on the fact relative to the egg-shells in my first paper, proposing to return to it again. This I actually did some weeks afterwards, when I conceived a system complete in itself, well connected, opening out new views to research, and of which I frankly declare that I had not the smallest idea a few days before I became attached to it. Let it not, however, be believed that I present either my old or my new conjectures as facts, the solidity of which I decidedly maintain. In the absence of facts, I venture to recur to presumptions, which may become motives for research; but if I calculate certain probabilities, I merely desire to have applied to them the criterion of observation. I know well that the mind of no man is endowed with the faculty of imagining with regard to substantial bodies, of distinctly conceiving the idea of a form. What has been seen of this kind is thenceforth known. Seriously admitting the truth of this proposition, I merely wish to play a useful part, restricting myself to the duties of a naturalist having the privilege of age, confident in the experience of ancient studies, and acquainted with the possible extent of the diversities of the acts of nature, in order to assist observers less practised than myself in the study of natural history, so that if there should exist in the most distant part of the globe, organic conditions which we are interested in becoming immediately acquainted with, I may say to them 'There is a chance that it is A, or B, or C; see what is the fact; instruct us with regard to it.'

"Thirdly, The monotrematic glands follow the *phases* of the development of the sexual apparatus: like the mammary, they form part of it, being large only in the females. To this I answer that it is presuming too much with regard to the resources of nature, (which shows on the contrary a tendency, as well as the most ingenious means of execution, for a diversity of forms,) to fall into absolute rules. What do we know of it? On the contrary, let us better understand our duties; let us constantly restrict ourselves to the consideration of facts. It is a means of exposing ourselves to grave mistakes, if we so easily and so precipitately determine with regard to functions. In fact the *Shrews* alone share with the *Monotremata* this fact of resemblance, viz, that the monotrematic glands are more developed in the female during the period of heat. The circumstances are different in the *Water-Rat*, which possesses the same gland at all seasons and in both sexes.

"Fourthly, What are we to infer from the distinction drawn from the nature of the localities, aquatic as regards the *Ornithorhynchus*, dry with reference to *Echidna*? And why might it not happen that the function should be modified according to the nature of the ambient medium? Let us not establish a general thesis on facts which are not accurately known. To acquire a knowledge of these facts is our object, and our uncertainty with regard to them forms the problematic part of our controversy. We are dealing with a new fact; let us wait till we have seen and learned it before coming to a definitive conclusion. The *Shrews* offer us another useful piece of instruction: they consist, in fact, of several species, all having the same gland, but not inhabiting the same localities. Some do not quit the lowlands and take freely to the water; while others are met with on the dry soil of upland plains."

The reading of M. Geoffroy-Saint-Hilaire's Paper having been concluded, Mr. Owen addressed the Society. He spoke of the glands adverted to by M. Geoffroy, as differing essentially from those of the *Monotremata*: in the *Water-Rat*, the glands exist in both sexes, and at all seasons; in the *Shrews*, they exist in the female only, and are developed in the season of heat; in the *Monotremata*, they exist also in the female alone, but their development is at the period of bringing forth the young. To these important discrepancies is to be added one still more important—the glands referred to in the *Water-Rat* and in the *Shrews* are additional to those for the nutrition of the young, and their function is wholly different: in the *Monotremata* only one set of glands exists, and these are admitted by M. Geoffroy, in his later hypothesis, to be for the secretion of nutriment for the young.

As regards the glands of the *Cetacea*, Mr. Owen adduced various testimonies to show that their secretion is milk, of a very rich quality, approaching to that of cream. Simplicity of structure, in a secreting organ which is usually complicated, cannot therefore be relied on as affording proof of a difference of function. All glands are in their lowest condition, simple tubes, which become, in the more highly developed forms of the gland, complicated in various degrees, conglomerate or conglobate. Such is the case with the organs for the secretion of bile, which commence in *Insects* in the form of simple tubes, and passing through various stages of complication, become in the higher classes condensed into a liver. Such is the case also with the pancreatic organ; a case more in point, as it exhibits, within the compass of a single class, that of *Fishes*, all degrees of complication. In some it seems to be altogether wanting; in others, it is rudimentary, consisting of one or two minute *cæca* appended to the *pylorus*; and these, in others, increase in extent, in number, in complication, by becoming branched, and eventually form, in the *Cartilaginous Fishes*, true conglomerate glands. To the class of *Mammalia* mammary glands are peculiar; and it might almost have been expected *à priori* that in that class these organs should be found in the various degrees of simplicity or complication of which they are capable. Such appears to be the case; in *Cetacea* they are simple *cæca* (and in this respect the glands of *Monotremata* agree with these mammary glands); in higher forms they are conglomerate, and cannot be misunderstood.

Mr. Owen added, with reference to the microscopic test of the nature of the secretion which was proposed by M. Geoffroy, that he had not been able to procure either from the glands themselves or the openings of their ducts any portion of their secretions to which the test could be applied; globules of oil alone offering themselves to his observation, and these existed also in the spirit in which the animals were preserved.

August 13, 1833.

N. A. Vigors, Esq., in the Chair.

A letter was read, addressed to the Secretary by E. W. A. Drummond Hay, Esq., Corr. Memb. Z. S., and dated Tangier, July 5, 1833. It referred to various animals which Mr. Drummond Hay has obtained for the purpose of forwarding them to the Society's Menagerie; and adverted to others which he is in hopes of procuring.

On the subject of the *Bakra 'l whash*, in the plural *Bakkar el whash*, Mr. Drummond Hay states that this term, as well as *Mahats* and *Targeea*, (all signifying *wild Cow*,) appears to be applied by the Arabs to *Antilope Leucoryx*. It is, however, possible that the same name may be applied to large *Ruminants* of different species; although to any having the general appearance of an *Antelope* it is likely that the Arabs would give the term, generic as it were, *Gazal*.

The skins were exhibited of a *Cayman*, and of the *Coyote* or *Mexican Jackal*, the latter being apparently the *Prairie Wolf*, *Canis latrans*, Say. They were obtained in Mexico by Captain Colquhoun, by whom they were presented to the Society; as were also the horns, which were similarly exhibited, of the *Berenda*, a *prong-horned Antelope*.

The stomach was exhibited of the *Pekan* or *Fisher Marten*, *Mustela Canadensis*, Schreb.; and Mr. Martin, at the request of the Chairman, read his notes of the dissection of the animal.

"Its length from the nose to the origin of the tail was 21 inches. An immense deposition of fat loaded the cellular tissue, as well as the *omentum* and intestines.

"The liver, like that of the *Mustela Foina*, was tripartite, consisting of a large middle and two lateral lobes; to which may be added the *lobulus Spigelii*. The middle lobe was deeply cleft into three portions, the right portion being the largest. In the fissure between this and the next portion was situated the gall-bladder, globular, or nearly so, in shape, and filled with green bile. The hepatic ducts leading from the several lobes of the liver were as large as crow-quills; they united in a single trunk previously to joining the cystic duct, which they did half way down its course. The general duct entered the *duodenum* 1 inch below the *pylorus*.

"The stomach was 5¼ inches in length, and of a somewhat elongated form, the cardiac portion being but little enlarged.

"The *omentum* covered the whole of the intestines.

"The spleen, of considerable size, and of a soft and flaccid texture, was connected by fatty *omentum* to the stomach, at the distance of 1 inch. Its length was 3 inches, and its breadth ¾ of an inch.

"The *pancreas* was thin and of a long irregular figure, following the fold of the *duodenum*, and closely attached to it.

"The total length of the intestines was 9 feet 2 inches. In the *Mustela Martes*, the body of which is 1 foot 4 inches in length, their length is 5 feet 11 inches; in the *Mustela Foina*, they measure 5 feet 6 inches: these measurements are given by Daubenton. In the *Polecat*, *Putorius vulgaris*, Cuv., with the body 15 inches long, the length of the intestines is 6 feet. No distinction existed between the small and large intestines, until arriving at the *rectum*, which for the extent of 7 inches presented a decided increase of circumference. This part was in a state of high inflammation, and thickly studded with minute gritty particles: a similar state of disease, though not to so great an extent, and without any deep redness, existed also in other portions of the intestines. The peritoneal lining of the abdominal *parietes* was universally and deeply inflamed, and still more rough than the *rectum*, with a thick sprinkling of gritty particles.

"The bladder also was inflamed, but rough only on the surface in contact with the *rectum*. It was empty, uncontracted, flaccid, and appeared as if on the eve of gangrene.

"The anal glands were as large as a nut, and filled with thin yellowish strongly-scented fluid. Their ducts opened just within the verge of the *rectum*.

"The kidneys were soft, and rather large; their length being 2 inches.

"The *uterus* was very small;—the length of the *cornua* 2 inches. This organ partook of the inflammation which affected the rest of the pelvic *viscera*.

"The lungs consisted of two lobes on the left, and three on the right side. The heart was rounded, its depth being 2 inches, its breadth below the auricles 1½ inch. The *aorta* was found to give off two arteries from its arch; of these the right, as large as a quill, ran single for 1½ inch, and then sent off the left carotid, and secondly, a right branch, which divided immediately into right carotid and right subclavian. The other, or left artery, arising from the *aorta*, formed the left subclavian.

"The tongue was 3 inches in length and rough on its upper surface. The *epiglottis* was acuminate."

Mr. Bell exhibited specimens of two *Reptiles*, forming part of his collection, which he regarded as the types of two genera hitherto undescribed. He stated his intention of publishing, in the 20th Number of the 'Zoological Journal' shortly about to appear, descriptions and figures of them.

To one of them he gave the generic name

ANOPS.

Pedes nulli.
Annuli thoracici completi.
Rostrum porrectum, scutello arcuato compresso tectum.
Oculi sub scutellis latentes.
Linea lateralis depressa.
Cauda breviuscula.
Pori præanales nulli.

ANOPS KINGII. *An. corpore suprà fusco, infrà albido.*
Long. 8 unc. 5 lin.; *capitis*, 4 lin.; *caudæ*, 1 unc. 2 lin.
Hab. in Americâ Australi.

This genus is referrible to the *Amphisbænidæ*, with which it agrees in general form, in the structure and arrangement of the scales, the concealed eyes and ears, and the short obtuse tail. From the other genera of the family it is distinguished by the form of its *rostrum* and of its singular compressed frontal plate, which considerably resembles that which characterizes the genus *Typhlops.*

The second of these *Reptiles* belongs to the family *Scincidæ.* It is characterized by Mr. Bell as follows:

LERISTA.

Caput scutatum; *palpebræ* nullæ; *aures* sub cute latentes.
Corpus gracile; *squamæ* læves æquales.
Pedes quatuor: *anteriores* exigui, brevissimi, didactyli; *posteriores* longiores, tridactyli.
Anus simplex, semicircularis; *pori præanales* et *femorales* nulli.

LERISTA LINEATA. *Ler. æneo-viridescens, subtùs pallidior; lineis binis dorsalibus et binis lateralibus nigris.*
Hab. in Australiâ.

This new genus of *Scincidæ* agrees with *Gymnophthalmus*, Merr., and *Ablepharus*, Fitzing., in the absence of eyelids; but differs from both in the number of its toes: the former having 4–5, and the latter 5–5, while *Lerista* has only 2–3. In addition to this difference in the structure of the feet, it is remarkably distinguished by the want of external ears, and by its elongated and anguiform body; characters in which it agrees with *Saiphos*, Gray. The last-named genus, however, possesses eyelids, and differs also in the number of its toes from *Lerista.*

Mr. Bell also read a paper, entitled "Observations on the Neck of the *three-toed Sloth, Bradypus tridactylus*, Linn., demonstrating that this Animal possesses only the Normal Number of Cervical *Vertebræ.*"

By all preceding anatomists since the days of Hermann the number of the cervical *vertebræ* in the *three-toed Sloth* has been considered to be nine; and the animal has consequently been regarded as deviating in this respect from the other *Mammalia*, in which class seven is the normal number of these parts,—a number which exists equally in the short interval between the head and the *thorax*, scarcely deserving the name of a neck, of the *Cetacea*, and in the long flexile neck of the *Camel* and the *Giraffe*. It was natural that so marked a deviation from a general law should attract considerable attention, and numerous skeletons of the animal in which it was stated to occur have accordingly been examined by Cuvier, Meckel, and others, who have all, with the exception of the last-named anatomist, concurred in the statement that nine cervical *vertebræ* exist; Meckel alone hinting at the probability that what had been previously regarded as the ninth cervical might, in truth, be a first dorsal *vertebra*. On what grounds M. Meckel was induced to offer this suggestion does not appear; it is probable that he was led to it by the form of the *vertebra* itself, which is altogether that of a dorsal *vertebra*; or he may have been guided by a statement made by Cuvier that in a young individual examined by him the transverse processes of the ninth cervical *vertebra*, as he described it, were not united to the *vertebra* itself, whence Cuvier was induced to inquire, May not this be a small vestige of a rib? Cuvier does not appear to have noticed this detached portion of bone in any but this young individual, nor as connected with any but that which he continued, even in his latest work, to regard as the ninth cervical *vertebra*.

In two skeletons, however, which Mr. Bell possesses, one of a young individual and the other adult, there are bony detached appendages on each side both of the eighth and ninth *vertebræ*, reckoning from the *cranium*, and Mr. Bell is therefore disposed to regard these *vertebræ* as being rather the first and second dorsal than the eighth and ninth cervical, and to consider the seven *vertebræ* craniad of them as constituting the normal set. The transverse processes of these *vertebræ* are longer and narrower than the preceding ones, and each is terminated by a perfect articular surface, which is slightly depressed. To these articular surfaces are attached the heads of the rudimentary ribs. The first of these rudiments is small and slender, about four tenths of an inch in length, having a distinct rounded head at the articular extremity, then becoming abruptly smaller, and tapering to the *apex*. The second is considerably larger and assumes more of the character of a short rib. It is about 6 lines in length and nearly 2 in breadth. Its head is oblong and rounded; and there is a tubercle on the upper and anterior side. Towards the extremity it becomes broader and flatter, with an excavated surface inwards, and a convex rough prominence on the outer side, apparently the point of muscular attachment. Immediately behind and beneath the head of the bone is a minute *foramen* for the passage of intercostal vessels.

The character of the transverse processes of the two *vertebræ* differs very materially from that of the true cervical. In the superior *vertebræ* this process is transverse and slightly bifid. In the seventh cervical it stands obliquely forwards, and its *apex* is broad and oblong. In the first dorsal each transverse process is completely divided into an anterior flattened process which is turned forwards, and a true lateral or transverse one which supports the little rudimentary rib: the transverse process is smaller, but considerably longer than those of the true cervical *vertebræ*, and stands more in a lateral or transverse direction. In the second dorsal *vertebra* the anterior process does not exist, and the body assumes the form of the succeeding ones. The transverse processes are simple and obtuse, and the articular surface is slightly excavated.

Mr. Bell exhibited, in illustration of his paper, the two skeletons referred to; that of the young individual being natural, and preserved with its connecting ligaments in spirit. The paper was also accompanied by drawings of the structure described in it.

A paper was read, entitled "Remarks on the Nature of the Respiratory Organs in certain Littoral *Mollusca* of Madeira: by the Rev. R. T. Lowe, A.M., Corr. Memb. Z.S." It referred to certain experiments published by the author in the 19th Number of the 'Zoological Journal,' which were instituted with the view of ascertaining, by the duration of their life when deprived by immersion in water of the access of free air, whether the animals of *Melampus*, *Tornatella*, &c., are pectinibranchiate or pulmoniferous. Mr. Lowe, in his present paper, intended for publication in the same Journal, is anxious to guard against the too strict adoption of his conclusion that animals which continue to exist for a long time immersed in water cannot be lung-breathing; as he conceives it to be possible that in animals so comparatively low in organization as *Mollusca*, the quantity of oxygen required for the aëration of the blood may be so small as to be furnished even by sea-water to lung-bearing races; or, in the second place, the lungs being supposed to be inactive during the immersion, that some compensating power may exist, as in the skins of the *Batrachia*, which may enable existence to be prolonged for a considerable time without the access of free air to animals whose organization is adapted for breathing it.

August 27, 1833.

N. A. Vigors, Esq., in the Chair.

A letter was read, addressed to the Secretary by the Rev. R. T. Lowe, Corr. Memb. Z.S., and dated Madeira, June 25, 1833. It accompanied an extensive series of the land and freshwater *Shells* of that island, which the writer presented to the Society's Museum, and which were exhibited. With one exception, they have been described by Mr. Lowe in a paper published, with figures, in the 'Transactions of the Cambridge Philosophical Society.'

In another letter, of the same date, Mr. Lowe states, "We have no native *Mammalia* (except a few *Seals* now and then on the coast,) existing on the Island, at least in its present state. The common *brown Rat* and the *Mouse* abound, of course introduced; and the *Ferret* is said to have become wild in one part of the island, though I have not myself seen it. The *Rabbit* is pretty common: it abounds in the *desertas*. As we have neither *Hares*, *Foxes*, *Shrews*, *Moles*, nor *Weasels*, so of the *Birds* we have no *Crows* nor *Rooks*, *Daws*, *Magpies*, *Sparrows*, (*Fringilla Petronia*, Linn., takes the place of the latter, at least in Porto Santo,) no *Titmice*, *Yellow-hammers*, &c."

A letter was read, addressed to Mr. Vigors by James Prinsep, Esq., and dated Calcutta, March 9, 1833. It accompanied a list of numerous zoological specimens forwarded to the Society by B. H. Hodgson, Esq., Corr. Memb. Z.S., Resident in Nepâl; and also of a large collection of living *Pheasants*, *Partridges*, &c., obtained by that gentleman at the request of the Council for transmission to England. On this list Mr. Prinsep had noted the condition of the various articles at the time of their arrival in Calcutta, by which it appeared that many of the birds had died during their journey from the interior. Of the *Monál* or *Impeyan Pheasant*, only two remained alive from among seventeen sent; and of these two, one was reported to be dying.

The gizzard, liver, *duodenum*, and adjacent parts, and the *cloaca*, were exhibited of the young *concave Hornbill*, *Buceros cavatus*, Lath., which recently died at the Society's Gardens; and Mr. Owen read his "Account of the Anatomy" of the bird.

Its tongue is very short, of a triangular form, and smooth. The air-cells are very large, and that in front of the neck contains the *œsophagus* and the *trachea*. The *œsophagus*, as in the *Toucan*, is very wide, and of nearly equal diameter as far as the gizzard. The gizzard is thicker in its coats and of a more elongated form than that of the *Toucan*: its cuticular lining is very tough, and disposed in longitudinal ridges. After the duodenal fold, the remainder of the intestinal canal is disposed in two similar folds; and then extends along the middle line of the back to the *cloaca*. There are no *cæca*. The coats of the intestines are stronger than is usual in *Birds*, and the diameter of the canal is more considerable, diminishing, however, gradually from the commencement of the *ileum* as far as the beginning of the *rectum*, and thence becoming wider to its termination. The whole length of the intestines is 5 feet; that of the bird, from the end of the bill to the vent, being 2 feet 2 inches, of which the bill measures 7 inches.

The liver has the usual two lobes, of which the right is the largest. The gall-bladder is of considerable size. The *pancreas*, of an elongated slender form, has a small oval enlargement at its commencement at the lower end of the spleen, and a flattened oblong mass or head at the bottom of the duodenal fold: it accompanies the *duodenum* throughout its length, being folded on itself similarly to the intestine. Its secretion is conveyed into the intestine by three ducts; one from its head, which enters the *duodenum* at the bend of the fold; the others from the elongated lobes, which terminate close together at the end of the fold between the insertions of the hepatic ducts: an arrangement corresponding with that described by Cuvier in his 'Leçons d'Anat. Comp.,' tom. iv. p. 55, as existing in the *Heron*.

In the *cloaca*, the rudimentary bladder is little more than a line in width, and the ridges bounding it above and below are confined to the back part of the cavity. The *bursa Fabricii* (which Mr. Owen regards as analogous to the glandular pouch, found single or double dorsad of the *rectum* in so many other classes,) is of a triangular form, large, and surrounded, as usual, by a capsule of muscular fibres.

The muscles of the mandibles consist of a *digastricus*, or of a muscle analogous to it, destitute, as is usual in *Birds*, of a middle tendon; a temporal muscle of moderate size; and *pterygoidei externi* and *interni*, proportionally more developed. There is also a strong ligament occupying the place of the *masseter*; and a second, destined to prevent dislocation backwards, which passes from the *zygoma* directly backwards to the condyle or articular depression of the lower jaw. Disproportionate as this apparatus seems to the moving of so large a body as the bill of the *Hornbill*, it is yet fully adequate, the weight of that organ by no means corresponding with its size. The cavities in the bones, the arrangement of the columns supporting their *parietes*, and the air-cells, produce at the same time lightness and strength.

With respect to other parts of the skeleton, Mr. Owen particularly noticed the extension of the air-cells into the distal bones of the extremities. In the *Pelican* Mr. Hunter observes that the air passes not only into the *ulna* and *radius*, but "into those bones which answer to the *carpus* and *metacarpus* of Quadrupeds." In the *Hornbill* the air passes also into the bones corresponding to the *phalanges*; and in the posterior extremity it permeates the *tibiæ*, *tarsi*, and *phalanges*.

Mr. Owen concluded by some remarks on the affinities of the *Hornbill* as deducible from its anatomy. Its nearest approach is to the *Toucan*. The *Toucan*, however, in the want of a gall-bladder agrees with the *Parrots*; the presence of that organ in the *Hornbill*, places the bird in more immediate relation with the *Crows*. The disposition of the intestines in long and narrow loops also agrees with the *Raven*. The tongue, so remarkably varied in form and use among the *Scansores*, resembles, in the *Hornbill*, that of the carnivorous *Birds*.

The individual was observed to be more attached to animal than to vegetable food, and would quit any other substance if a dead mouse were offered to it. This it would swallow entire, after squeezing it twice or thrice with the bill: and no castings were noticed. Petiver, however, has borne testimony to its regurgitating habits.

The communication was accompanied by drawings of the organs of nutrition; of the *cloaca*; and of the bill and its muscles.

A "Description of *Alepisaurus*, a new genus of *Fishes*," by the Rev. R. T. Lowe, A.M., Corr. Memb. Z.S., was read. It was contained in a letter addressed to the Secretary, and was accompanied by a coloured drawing of the *Fish*, which was exhibited, as was also a specimen, preserved in spirit, which had been presented to the Society by Mr. Lowe in the summer of 1832.

Mr. Lowe refers the genus in question to that family of the *Acanthopterygii* to which Cuvier has given the name of *Tænioides*. Its generic characters may be thus expressed.

ALEPISAURUS.

Caput compressum, anticè productum; *rictu* magno, pone oculos longè diducto; dentibus uniseriatis, validis, retrorsum spectantibus, quibusdam prælongis.

Corpus elongatum, attenuatum, cum capite omnino nudum.

Pinnæ dorsales duæ; *prima* alta, a nuchâ longè per dorsum producta; *secunda* parva, trigona, adiposa: *ventrales* mediocres, abdominales: *analis* mediocris, anticè elevata: *caudalis* magna, furcata.

Membrana branchiostega 6–7 radiata.

ALEPISAURUS FEROX.

Hab. in Mari Atlantico Maderam alluente, rarissimus.

In its habit, shape of body, smoothness of skin, compressed head, wide gape, and long formidable teeth, *Alepisaurus* agrees with *Trichiurus* and *Lepidopus*; but in the former of these genera the ventral fins are wanting, and in the latter they are rudimentary only and pectoral: *Trichiurus* is also destitute of a caudal fin. In both of them, moreover, the anal fin is anormal and the dorsal is single. The two dorsal fins of *Alepisaurus* are remarkable among the *Fishes* with which it is most nearly related; and the small adipose second dorsal evidently indicates a curious relation of analogy to the *Salmonidæ* among the *Malacopterygii*.

September 10, 1833.

N. A. Vigors, Esq., in the Chair.

A letter was read, addressed to Mr. Vigors by B. H. Hodgson, Esq., Corr. Memb. Z. S., and dated Nepâl Residency, February 23, 1833. It referred to the zoological specimens which the writer had forwarded to Calcutta, to be thence transmitted to England, some account of which, as contained in a letter from Mr. Prinsep, was read at the last Meeting.

Referring to his 'Catalogue of the Mammalia of Nepâl,' published in the 'Journal of the Asiatic Society of Calcutta,' Mr. Hodgson states that he has since ascertained, by living specimens, the existence of two kinds of *wild Sheep* in the Himalayan Region, —one a variety of *Ovis Ammon*, the other of *Ovis Musmon*. The native name of the former is *Ban-bhêra*, literally *wild Sheep*; that of the latter is *Nayour* or *Na'hoor*. The *Nayour* is described by Mr. Hodgson in the forthcoming volume of the Transactions of the Calcutta Society; as is also the *wild Goat*, the local name of which is *Jháral*. This is truly a *Goat*, and is a variety of *Capra Ægagrus*, agreeing in its horns with the Alpine race: its head is closely shorn on all parts, and there is no vestige of a beard: there is, however, a copious flowing leonine mane, covering the whole neck and shoulders.

The *Jháral* is not to be confounded with the *Ghŏrăl* (not *Gŏrăl*), the latter being truly an *Antelope*: its horns are cylindrical, while those of the *Jháral* are angular; the latter is at first sight distinguished by the large flowing mane just alluded to, of which there is no vestige in the *Ghŏrăl*. As compared with the *Ghŏrăl*, *Antilope Goral*, Hardw.,—which is a small agile creature, without suborbital sinuses, (as Mr. Hodgson has ascertained by the examination of three living individuals,) and without mane,—the *Thár* is a massive beast, twice the size, and has suborbital sinuses, and a mane along the back of the neck and shoulders, as described in a communication made by the writer to the Society, and published in the 'Proceedings of the Committee of Science and Correspondence,' Part II. p. 12. For the name of *Ant. bubalina*, then employed by him, Mr. Hodgson now proposes to substitute that of *Ant. Thar*; and states his intention of forwarding to the Society a detailed account of it, of the *Ghŏrăl*, of the *Goat*, and of the wild *Sheep* of Himalaya.

Mr. Hodgson adds, that the royal *Tiger* is found in the central region of Nepâl: he has a living specimen, which was taken in the latitude of Vully.

The Secretary called the attention of the Society to several recent acquisitions to the Menagerie; including a specimen of the *red-*

handed Tamarin Monkey, Midas rufimanus, Geoff., presented by J. Christopher, Esq.; of the *crested Porcupine, Hystrix cristata*, Linn., which had recently been brought forth there, being the first instance of such an occurrence in this species, and respecting which he added, that observation of the young while sucking confirmed the correctness of M. Blumenbach's statement that the nipple is nearly axillary; of the *purple-crested Touraco, Corythaix porphyreolopha*, Vig., presented by J. J. Audubon, Esq.; and of the *Platycercus Novæ Hollandiæ*, Vig., *Psittacus Novæ Hollandiæ*, Lath., a species which appears not to have been seen since the time when it was originally described until very recently, when a living specimen for the Menagerie, and skins for the Museum, were obtained nearly simultaneously.

Mr. Bennett also called the attention of the Meeting to a living *Lemur*, forming part of the Society's collection, and pointed out the distinguishing marks which induced him to consider it as the representative of an undescribed species, for which he proposed the name of

LEMUR RUFIFRONS. *Lem. cinereus, subtùs artubusque rufescente tinctis; caudâ saturatiore; fronte supernè rufo infernè albo, lineâ longitudinali mediâ nasoque nigris.*

Long. *corporis*, plus quam pedalis; *caudâ* corpore longiore.

The back is grisly, the fur being dusky at the base and grey at the tip: the tail is rather darker than the back, and is, on its under surface at its base only, as well as the parts surrounding the *anus*, black. The under parts, the haunches, and the limbs, especially the back part of the hinder ones, have an intermixture of rufous. A broad patch of rufous occupies the upper part of the forehead, extending to the ear on each side; it passes downwards and becomes fainter in forming whiskers surrounding the throat, somewhat similarly to those of *Lem. collaris*. Lower than this rufous patch, and extending on each side over, outside, and beneath the eye, is a broad, nearly complete circle of white. Down the middle of the forehead passes a longitudinal line of deep black, which expands between the eyes, and is continuous with the jet black of the nose.

The face is lengthened, and agrees in form with that of the section of the *Lemurs* represented by *Lemm. Macaco, niger, Catta*, and *ruber*; it is much more elongated and pointed than in *Lemm. albifrons, collaris*, &c.

The tail is cylindrical, and has evidently been bushy, some of the hairs being of considerable length.

At the request of the Chairman, Mr. Gould exhibited a series of specimens of the genus *Malurus*, Vieill., including the whole of the species previously known, together with one, forming part of the Society's collection, which he regarded as hitherto undescribed. He characterized it as the

MALURUS PECTORALIS. *Mal. capite dorsoque cyaneis; maculâ infrà-orbitali metallicè azureâ; lineâ a rictu ad oculum, fasciâ* *cervicem cingente a lateribus productâ, alterâque pectorali posticâ nigris; jugulo pectoreque saturatè purpureis, ventre pallidiore; alis sordidè caudâque æruginoso-cœruleis, remigum apicibus rhachibusque internis brunneis.*

Long. tot. 4½ unc.; *rostri*, ½; *tarsi*, 7 lin.; *alæ*, 1 unc. 7 lin.; *caudæ*, 2½ unc.

Rostrum nigrum; *tarsi* saturatè brunnei.

Hab. in Australiâ.

Mr. Gould also exhibited specimens of the male and female of the *Trogon pavoninus*, Spix: the latter, he stated, has hitherto escaped the observation of ornithologists. It has recently been acquired for the Society's collection.

The female rather exceeds the male in all her proportions. Her bill is black instead of yellow: her crest is shorter, and has bronzy reflections. The whole of the under surface is of a brownish grey, with the exception of the under tail coverts, which are scarlet. The outer tail feathers, which in the male are white with black shafts, are in the female barred, except at the base, where they are dull black. The colours of the upper surface are similar in both sexes; but the plumes which spring from the rump, and which in the male attain so remarkable a length, scarcely extend in the female beyond the tip of the tail.

A "Description of *Perdix Lerwa*," by B. H. Hodgson, Esq., Corr. Memb. Z. S., was read. It was accompanied by a coloured drawing of the bird, which inhabits the northern region of Nepâl, and forms, by its half-plumed *tarsi*, a sort of link between the *Partridges* and the *Grouse*. Its habits assimilate with those of the latter genus. It is found close to the permanent snows, among rocks and low brushwood, and sustains itself upon aromatic buds, leaves, and small insects. It is characterized as follows:

PERDIX LERWA. *Perd. nigra, albo castaneoque transversim lineata; pectore brunneo; tarsis ultra calcar plumosis; remige 2dâ longiore.*

The great comparative expanse of the wing; the diminution of its rounded form by the second quill feather being the longest; the increased length and strength of the tail; and the extent of the feathering of the *tarsi*, are very remarkable characters, which give to this species a peculiar interest. Its dimensions, as compared with several allied birds, are given by Mr. Hodgson in the following table:

	Perd. Lerwa.	*Perd. Chukar.*	*Perd. gularis.*	*Perd. Francolinus.*
Length, from the tip of the bill to that of the tail	$1{\cdot}2\frac{3}{4}$	$1{\cdot}1\frac{1}{2}$	$1{\cdot}2\frac{1}{4}$	1·2
Length of the bill	1	$1\frac{1}{8}$	1	$1\frac{1}{16}$
Basal height of ditto	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{7}{16}$	$\frac{4}{8}$
Basal breadth of ditto	$\frac{5}{8}$	$\frac{12}{16}$	$\frac{9}{16}$	$\frac{5}{8}$
Length of the tail	$4\frac{5}{8}$	$3\frac{1}{2}$	$4\frac{1}{8}$	$3\frac{3}{4}$
Expanse of the wings	$1{\cdot}11\frac{1}{2}$	1·8	$1{\cdot}9\frac{1}{4}$	1·8
Length of the *tarsi*	$1\frac{7}{8}$	$2\frac{3}{16}$	$2\frac{5}{8}$	$2\frac{1}{16}$
Length of the central toe and nail	$1\frac{6}{8}$	$2\frac{7}{16}$	$2\frac{1}{2}$	$1\frac{3}{8}$
Weight	1lb. 2oz.	1lb. 2oz.	1lb. 2oz.	1lb.

A paper "On the Anatomy of the *Cheetah*, *Felis jubata*, Schreb.," was read by Mr. Owen. It commenced by remarking on *Felis* as a truly natural genus, and by observing that the anatomical structure of the animals composing it offers even fewer differences than their outward forms. The principal deviation from the common type is that which obtains in the organs of voice of the *Lion* (and, as Mr. Martin has observed, in those of the *Jaguar* also), where the *larynx* is situated at a considerable distance from the posterior margin of the bony palate, the soft palate and the tongue being proportionally increased in length, and thus a gradually expanding passage is formed, which leads from the *glottis*, where the air is rendered sonorous, to the mouth. This structure may contribute, in the *Lion*, to produce the peculiar roar of that animal.

In the *Cats* generally, the connexion of the *os hyoides* to the *cranium* is not by a long elastic ligament, as in the *Lion*, but by an uninterrupted series of bones. This latter structure exists in the *Cheetah*. The *Cheetah* has also the circular pupil of the *Lion*, *Tiger*, *Leopard*, and *Jaguar*, and is perhaps the most diurnal of the genus.

In the form of the *œsophagus*, and in the transverse *rugæ* of its lower half, the *Cheetah* agrees with the *Lion*; and, as in it and in the other *Feles*, the *œsophagus* is not prolonged into the *abdomen*, but terminates immediately after passing through the diaphragm in the stomach. This organ in the *Cheetah* has all the peculiarities which are found in the genus *Felis*. The intestines also agree in character with those of that group; and the *cæcum*, as usual in it, is simple, having none of the convolution which is found in the *Dog*. The liver, *pancreas*, and spleen, resemble those of the *Cats* generally; as do also the kidneys in the arborescent form of their superficial veins: a form, however, equally common to the *Viverridæ* and the *Felidæ*, which also agree in having *spiculæ* on the tongue.

The *viscera* of the *thorax* in the *Cheetah* agree with those of the *Cats*. The *lytta*, or rudiment of the lingual bone, so conspicuous in the *Dog*, is reduced in it, as in the other feline animals, to a small vestige.

There is, as in the *Feles* generally, no bone of the *penis*; and the *glans*, as usual in them, has retroverted *papillæ*.

The elastic ligaments of the ungual *phalanges* exist in the same number and position as those of the *Lion*; they are, however, longer and more slender, their length alone occasioning the incomplete retraction of the claws as compared with the rest of the *Felidæ*.

Mr. Owen concluded by observing that in the circulating, respiratory, digestive, and generative systems, the *Cheetah* conforms to the typical structure of the genus *Felis*.

September 24, 1833.

William Yarrell, Esq., in the Chair.

A collection of skins of *Birds*, sixty-four in number, formed in the Himalayan Mountains, and presented to the Society by Lady William Bentinck, was exhibited. It included several species apparently new to science, and was particularly rich in the interesting *Pheasants* of the Himalaya. The collection was remarkable on account of the fine condition of the specimens, which generally surpassed in beauty those previously contained in the Society's Museum.

A series of eighty skins of *Birds*, selected from a collection formed in India by H. B. Hillier, Esq., and presented by that gentleman to the Society, was exhibited. It comprised specimens of many species in fine or interesting plumage.

Mr. Bennett called the attention of the Meeting to a *Monkey* which had been for some time living at the Society's Gardens, and which, from a comparison of the figures and descriptions of recent authors, he had regarded as entirely new, until Mr. Ogilby pointed out to him its identity with the *Malbrouck* of Buffon, a very different animal from that figured under the same name by M. Fréderic Cuvier. The *Simia Faunus*, Linn., to which Buffon referred his *Malbrouck*, is wholly founded on a figure given by Clusius in his 'Exotica,' which represents, if correctly drawn, a species nearly related to the *Simia Diana*, Linn. (not F. Cuvier); and the *Simia Cynosurus*, Scop., with which M. Geoffroy and others have since identified it, is so imperfectly figured and described as to apply with almost equal justice to any of the related species. It became necessary therefore to give a new name to the true *Malbrouck*; which, as its characters appear to have been of late completely misunderstood, even in France, seemed also to require a new description to assist in its recognition. Buffon's figure, and the accompanying description by Daubenton, were taken from a female; the Society's specimen is a male.

CERCOPITHECUS TEPHROPS. *Cerc. suprà fusco-virescens, infrà albidus; artubus externè grisescentibus; facie pallidè carneâ, naso, genis, labiorumque marginibus pilis brevibus fuliginosis conspersis.*

The colour of the upper surface resembles that of the *Green Monkey*, *Cerc. Sabæus*, Geoff., having the separate hairs ringed with black and yellow; on the outsides of the legs it has more of a greyish hue, the lighter rings on the hairs having little of the yellow tinge. The under surface is nearly of a pure white, and this extends to the insides of the limbs and to the sides of the neck anteriorly, where the hairs do not attain a sufficient length to constitute moustaches. The naked parts of the hands, and the nails, are black; the ears dusky; and the face is of a light flesh colour, with short black hairs, giving a sooty tinge to the nose, cheeks, and edges of the lips, from which a circle round the eyes and the space surrounding the nostrils are free. There is a narrow light bandeau traversing the forehead above the superciliary ridges. The tail, in its mutilated state, is nearly as long as the body, and is of the same colour as the latter above, and lighter beneath. The length of the body appears to be about 18, that of the tail 16 inches.

A paper entitled "Further Illustrations of the *Antilope Hodgsonii*, Abel," by B. H. Hodgson, Esq., Corr. Memb. Z. S., was read. These are derived from opportunities of observing other individuals which have occurred to the author since his original description was drawn up; the latter having been communicated to the Society in March 1831, and with some additional particulars in January 1832. A full abstract of these communications was given in the 'Proceedings of the Committee of Science and Correspondence,' Part I. p. 52 and Part II. p. 14; and they have also been published at Calcutta in the 'Gleanings of Science.'

The nasal tumours, which form so remarkable a peculiarity of the *Chiru*, are found, on closer examination, to consist of fine elastic skin and cartilage, similarly to the nostrils, immediately behind the posterior boundary of which they are situated, and into which they open freely; being, in fact, a prolongation backwards, and accessory dilatation of that reflection of the skin which lines the nostrils. Externally they present a round, firm, elastic swelling on each lip, well defined, and covered with hair like the adjoining parts: internally they constitute a sac, of capacity to contain a marble, lined with the same skin that lines the nostrils, and not communicating with the interior of the nose except by and through the ordinary nostrils, into which the sacs open forwards by a slit that will admit the finger to be passed into it, and thence all over the interior of the sac. These sacs are usually defiled with *mucus* secreted from the nose; and they seem to Mr. Hodgson to be nothing more than supplementary nostrils, designed to assist this exceedingly fleet animal in breathing when he is exerting all his speed: for the expansion of the nostrils opens them also, and their elasticity allows of their being dilated in the manner of the nostrils.

There is no appearance, either external or on the bones of the face, of lacrymal sinuses.

There is reason to believe that the female of the *Chiru* is destitute of horns. This is stated to Mr. Hodgson by Vir Keshwar Pandè, the Envoy of the Court of Nepâl to that of China; who adds, that the female has but two teats, and produces only one young at a birth.

As to the existence of inguinal pores, Mr. Hodgson states that he is yet uninformed.

Adverting to the opinion of Colonel Hamilton Smith that the

Chiru is probably identical with the *Kemas* of Ælian, Mr. Hodgson remarks, that if the latter animal is justly characterized as having a white tail, and residing in woods, it must be distinct from the *Chiru*, which inhabits open plains exclusively, never frequenting either mountains or woods; and in which, moreover, the tail on its outer surface is always coloured like the proximal part of the back.

Mr. Hodgson concludes his paper by a detailed description of the skull and horns of the *Chiru*. The bony *nucleus* of the latter has a large oval cavity, communicating by one clean canal with the frontal sinuses. A cavity also exists in the osseous core of the horns of the *Thár Antelope*.

A "Description of the *wild Dog* of Nepâl," by B. H. Hodgson, Esq., Corr. Memb. Z. S., was read. Its local name is *Búánsú*. It is characterized as the

CANIS PRIMÆVUS. *Can. dentibus molaribus in maxillâ inferiore utrinque sex; palmis plantisque pilosis; auribus erectis; suprà saturatè rubiginosus, infrà flavescens; caudâ insigniter comosâ, rectâ, mediocri.*

The very remarkable peculiarity in the number of the molar teeth of the lower jaw, indicated in the specific character, has been verified by Mr. Hodgson on the examination of the *crania* of three adult, two mature, and one young individual of the race. The deficient number is occasioned by the absence of the second tubercular tooth. All the other teeth exist in the ordinary number and positions.

At the commencement of his paper, Mr. Hodgson remarks on the uncertainty that prevails as to the primitive stock of the *familiar Dog*, and rejecting, with most modern zoologists, the claim of the *Wolf*, the *Jackal*, and the *Fox* to rank as its prototype, he also argues against regarding as such the half-reclaimed *Dingo* of Australia. He thinks that he has detected this original race in the *Búánsú* of Nepâl, the eastern and western limits of whose range appear to be the Sutlege and the Burhampootra, and which seems to extend, with some immaterial differences, into the Vindyia, the Ghauts, the Nilgiris, the Casiah Hills, and in the chain passing brokenly from Mirzapore through South Bahar and Orissa to the Coromandel Coast.

Of this race, although so wild as to be rarely seen, Mr. Hodgson has succeeded in obtaining many individuals; some of which lived in confinement many months, and even produced young, having been pregnant when they reached him. He is consequently enabled to describe not only the form and colours, but the manners also, which he does in great detail. The form he compares particularly with that of the *Indian Jackal* and the *Indian Fox*, short notices of which he gives as an Appendix, and comparative figures of which with the *Búánsú* he also forwards with his paper. The paper is also accompanied by comparative figures of the *crania* of these several species; and the description given of this important part of the animal structure is also comparative.

The *Búánsú* preys by night as well as by day, and hunts in packs of from six to ten individuals, maintaining the chase rather by its powers of smell than by the eye, and generally overcoming its quarry by dint of force and perseverance. In hunting it barks like a hound; but its bark is peculiar, and equally unlike that of the cultivated breeds of *Dogs* and the strains of the *Jackal* and the *Fox*.

Adults in captivity made no approach towards domestication; but a young one, which Mr. Hodgson obtained when it was not more than a month old, became sensible to caresses; distinguished the dogs of its own kennel from others, as well as its keeper from strangers; and in its whole conduct manifested to the full as much intelligence as any of his sporting dogs of the same age.

It appears by a notice in the 'Journal of the Asiatic Society of Calcutta,' that Mr. Hodgson's paper on the *Búánsú* has been read before that body. It is consequently to be expected that it will be published in the 'Asiatic Researches.'

October 8, 1833.

N. A. Vigors, Esq., in the Chair.

A letter was read, addressed to the Secretary by W. A. Wooler, Esq., and giving an account of a *wild Dog* from the Mahablishwar Hills, now known as Malcolm's Pate, in the Presidency of Bombay: its local name is *Dhale*. The habits of this *Dog*, in a state of nature, are described by Mr. Wooler: they accord with those of the *Búánsú* of Nepâl, as detailed by Mr. Hodgson in a paper read at the previous Meeting of the Society.

A specimen was exhibited of the *hairless Egyptian* variety of the *familiar Dog*, which had recently died at the Society's Gardens. The exhibition was made principally with the view of illustrating the apparent connexion between teeth and hair. In this animal, so remarkable for its deficiency of hair, a corresponding deficiency of teeth was observed; there being neither incisors nor canines in either jaw, and the molars being reduced to one on each side, the large tubercular tooth being the only one remaining.

Mr. Yarrell stated in further illustration of the subject, that he had examined the mouths of two individuals of the same variety still living at the Gardens, in both of which he found the teeth remarkably deficient. In neither of them were there any false molars; one was entirely destitute of canines also, these teeth being in the other short of the usual number; and the incisors were also in both deficient in number.

He also exhibited from his collection the *cranium* of a hairless *Terrier*, in which the false molars were wanting.

A letter was read addressed to the Secretary by M. Savi, For. Memb. Z.S., and dated Pisa, July 22, 1833. It accompanied a collection of the works of the writer, which he presented to the Society, together with specimens of most of the zoological objects which he had added to science. These specimens were exhibited.

In bringing them severally under the notice of the Society, the Secretary continually referred to those writings of M. Savi which related to them, and explained from thence the most interesting particulars connected with each of the specimens submitted.

A collection of skins of *Mammalia*, obtained from the Frankfort Museum, was exhibited. The whole of them were from Abyssinia, where they were procured by M. Rüppell, in the 'Zoological Atlas' of whose 'Travels in Northern Africa' many of them were for the first time described and figured. They included thirteen species new to the Society's collection, and were severally brought under the notice of the Meeting by the Secretary.

October 22, 1833.

William Clift, Esq., in the Chair.

A letter was read, addressed to the Secretary by Sir R. Ker Porter, Corr. Memb. Z. S., and dated City of Caracas, August 14, 1833. It described a *Bear* now living at that place and brought from the Andes, which differs in the marking of its face both from the individual of *Ursus ornatus*, figured by M. F. Cuvier, and from that which forms at present a part of the Society's Menagerie. The yellowish white of its face begins on the bridge of the nose between the eyes, and describes under each eye a semicircle, whence it extends over the whole of the muzzle, taking rather a greyish hue, until it ends in pure white, covering the whole throat and chest, and forming a point between the fore legs. The rest of the animal is jet black, the hair being silky and shining. It is smaller by far in size than the *Bears* of the Northern countries of Europe, and is more compact in form.

Sir R. Ker Porter also enters into various details respecting the *Curassows* or *Powies* of Caracas. Of a pair kept by him in confinement, the female laid an egg without making any provision for its reception or paying it any subsequent attention.

He adds that he has obtained a specimen of a bearded *Capuchin Monkey* from the Rio Negro, which he intends forwarding to the Society in the spring.

Mr. Cox stated that he had at present in his possession a living *Mocking-bird*, which he had recently obtained from North America, and to which he invited the attention of the Members.

A specimen was exhibited of the female *Antilope Bennettii*, Sykes, which had been presented to the Society by the President, Lord Stanley. It had lived in his collection for about a month, and was believed to be pregnant, which was ascertained on examination after death to be the fact.

Drawings were exhibited of two *Fishes* taken in Mount's Bay, Cornwall. They were communicated by Dr. Henry Boase, and one of them was accompanied by a short description. It appears to be the *Capros Aper*, La Cép., *Zeus Aper*, Linn., a Mediterranean species which has not before been noticed as occurring on our shores, unless it be the fish included by Mr. Couch in his list of the *Fishes* found in Cornwall, (Linn. Trans., vol. xiv. p. 81.) under the name of *Stone Basse*; the reference to Ray, however, made by the latter author is to a species of *Gerres*, Cuv. Dr. Boase's drawing agrees well with the figure published by Rondelet. His description is as follows:

"Body thin and compressed, of a reddish colour, brightest at the origin of the fins; firm and rough with small shining scales; no spots, stripes, nor bands. Jaws nearly equal; mouth small with retractile lips; snout cylindrical, and, when protruded, more than an inch in length; teeth setaceous. Eyes large; *irides* orange yellow and brilliant, furnished with a nictitating membrane. Gill-cover of two pieces, not spinous, but both angular. Lateral line curved. Fins: dorsal very long and divided, anterior portion of nine spines of unequal length connected by a thin membrane, the posterior consisting of fifteen [twenty-four?] bristly rays; pectoral small, of thirteen rays; ventral of six rays, the first a strong curved spine, all united by a membrane like the dorsal; anal of twenty-six rays, the first three being distinct spines; caudal square, of fourteen setaceous rays."

The other drawing represents a *Tetrodon*, evidently identical with that obtained from the same coast by Pennant and by Mr. Donovan.

Mr. Gray gave some account of the reproduction of *Cirrhipeda*, founded on observations made by him on *Balanus Cranchii*, Leach, during a recent visit to the coast of Devonshire. In illustration of his remarks he exhibited an adult of that species with the eggs attached to the body at the base of the shell, and the young *in ovo*. He also exhibited numerous very minute individuals of *Bal. vulgaris* affixed to rock.

He described the mode of reproduction as ovoviviparous. On opening under water, after they had been preserved in spirit, the eggs attached to the body of the adult, each was found to contain a perfectly developed animal, which occupied nearly the whole of its cavity. The form of the young *Barnacle* at this period of its existence is ovate, rather tapering above, and truncated and ciliated at the tip: it is furnished with three pairs of arms along the sides, the base of each arm being two-jointed; the lower pair of arms has only one elongated process, while each of the two upper pairs has two fusiform, thick, articulated and ciliated processes, similar to those of the anterior part of the perfect animal, but less elongated. From the adult it differs chiefly in having a smaller number of feet and in the less development of the hinder part. It is also destitute of shelly covering, which is probably not formed until the young animal becomes fixed. In very small attached individuals of the *common Barnacle* the shell is rather soft, transparent and horn-coloured.

In the absence of shell from the animal in the egg, an additional evidence is furnished of the affinity of the *Cirripedes* to *Crustacea* rather than to *Mollusca*: the fœtus in the latter class being covered by a shell at a very early stage of its embryo growth. The existence in the young animal of a smaller number of arms than that found in the adult is also analogous to the corresponding fact which has been observed in several of the *Branchiopodous Crustacea*. A similar fact has recently been noticed by Dr. Nordmann as occurring in *Lernæa*.

Mr. Gray remarked that he had been the more induced to call the attention of the Society to the subjects which he exhibited, on account of his observations being at variance with those recorded by Mr. J. V. Thompson in the fourth Memoir of his 'Zoological Researches.' The young of *Balanus* is there described as being, when $\frac{1}{10}$th of an inch in length, a free swimming animal, resembling *Cyclops* in its general form, and having pedunculated eyes: and it is stated that it then throws off its bivalve-shell-like envelope together with the greater part of the black colouring matter of the eyes, becomes fixed and covered with calcareous matter, and is changed into a young *Barnacle*, such as is described by Pennant as *Balanus pusillus*, the arms at the same time acquiring the usual ciliated appearance. In Mr. Gray's specimens of the young, on the contrary, the general form of the adult is found, and the arms are ciliated while it is still in the egg, its total length being less than $\frac{1}{50}$th of an inch. Of this length it is also by no means uncommon to find *common Barnacles* attached.

Mr. Gray added that on examining the eggs which are found around the base of the animals of *Pentalasmis*, Leach, and *Otion*, Ej., he had observed indications of the existence of young similar to the adult. They were not, however, sufficiently developed to enable him to describe them with precision.

Mr. Gray also called the attention of the Society to a fact connected with the history of some of the marine *Gasteropodous Mollusca*, which he had observed on the same occasion with the young of the *Balani*. It is well known that the animals of terrestrial shells are torpid during the winter in cold and temperate climates, and during the dry season or summer in tropical regions; but it had not been previously remarked that a similar state occurs in those of marine shells. Mr. Gray found that many individuals of *Littorina petræa*, and some of *Litt. rudis*, were in this condition during his stay at Dawlish. They were attached to the rocks several feet above the reach of the highest autumnal tides; their foot was entirely retracted; and a membranous film was spread between the rock and the edge of the outer lip of the shell: the gills were only moist, the branchial sac being destitute of that considerable quantity of water which exists in it in those of the same species which are adherent to the rock by their expanded foot. In this torpid condition, the individuals observed by Mr. Gray continued during the whole of his stay, which lasted for more than a week. On removing several of them and placing them in sea water, they recovered in a few minutes their full activity.

Mr. Gray further stated that he had on the same occasion observed that the animal of *Rissoa parva* has the power of emitting a glutinous thread, by which it attaches itself to floating sea-weeds, and is enabled, when displaced, to recover its previous position. A similar property, he remarked, was long since observed in one of the land *Mollusca*, a species of *Limax*, Linn.; and it has recently been recorded by M. Sander Rang as occurring in a marine genus of *Mollusca*, to which he has given the name of *Litiopa*. Mr. Gray added his belief that it would probably be found to be common to many species of marine *Mollusca*.

November 12, 1833.

Richard Owen, Esq., in the Chair.

A letter was read, addressed to the Secretary by M. Julien Desjardins, Corr. Memb. Z. S., and dated Mauritius, June 20, 1833. It was accompanied by an "Extrait du Troisième Rapport sur les Travaux de la Société d'Histoire Naturelle de l'Ile Maurice," of which Society M. J. Desjardins is the Secretary. This extract, containing an account of the Zoological Proceedings of the Mauritius Natural History Society, was read.

In Ornithology only one paper has been read. It is a description, by M. J. Desjardins, of the *Greenshanks*, *Totanus Glottis*, Cuv., taken from a specimen killed in Mauritius: the bird not being known to have previously occurred in the island.

In *Ichthyology* the contributions have been numerous. M. Liénard, sen., has described a new species of *Grammistes*, Cuv., distinguishable from the two previously known by its compressed form, on which account it has been designated *Gramm. compressus*: its first dorsal fin has nine rays. He has also described a new species of *Cirrhites*, Cuv., remarkable for a vertical *septum* formed in the middle of its palate by a prolongation of the lining membrane of the mouth: and an *Aphareus*, Cuv., which to some differences in the number of the rays from *Aph. cærulescens*, Cuv., adds others in colouring, and particularly a yellow spot on the forehead, and another near the angle of the *præoperculum*. He has given a particular account of *Epibulus Insidiator*, Cuv., and of its anatomy; and has noticed a fish, which he regards as a variety of this species, distinguished principally by its colour being pale yellow instead of reddish green. He has also described *Trichiurus lepturus*, Linn.; and *Zanclus cornutus*, Cuv., adverting, as regards the latter, to some particulars of the anatomy of this scaleless *Chætodon*. M. E. Liénard has described two new species of *Holacanthus*, La Cép., one of which is marked with numerous transverse bands, of which the anterior are interrupted; the other having also numerous bands similarly directed, but curved. M. J. Liénard has given a detailed description of a fish, which he regards as constituting a new subgenus between *Anampses*, Cuv., and *Odax*, Ej.: it has six incisor teeth, and these, instead of being directed outwards like the two incisors of *Anampses*, are curved inwards. And lastly, M. J. Desjardins has described two new species of *Chætodon*, Cuv.: one of them, *Chæt. festivus*, has a large eye-like spot on the soft rays of the dorsal fin, and a black spot on those of the anal; its form is orbicular, and the spinous rays of its dorsal fin are twelve: the other, *Chæt. chrysurus*, is of a rather elongated form, and has thirteen spinous rays in its dorsal fin; its principal markings are eight transverse bands, angular in the middle, succeeded by a white zone, which is followed by a region of orange yellow occupying the soft part of the dorsal and anal fins and the whole of the tail, and becoming paler at its hinder part.

M. J. Desjardins has also described a new species of the *Crustaceous* genus *Ranina*, Desm., to which he has given the name of *Ran. cristata*.

In Entomology M. W. Bojer has described a new species of the *Prionidous* genus *Dorysthenes*, Vig.; and M. J. Desjardins has given an account of three new species of *Libellula*, Linn., under the respective names of *Lib. limbata*, *Lib. semihyalina*, and *Lib. bimaculata*, all being indigenous to Mauritius.

The Secretary called the attention of the Society to several animals which had recently been added to the Menagerie. They included an *ursine Opossum*, *Dasyurus ursinus*, Geoff., an animal known to the colonists of Van Diemen's Land by the appellation of the *Native Devil*; a *Secretary Vulture*, *Gypogeranus serpentarius*, Ill., presented to the Society by Lieutenant-General Sir Lowry Cole; and two *crowned Cranes*, presented by the same distinguished officer, on his return from the government of the Cape of Good Hope.

Referring more particularly to the latter, he brought under the notice of the Meeting specimens from the Society's Museum of *crowned Cranes* from Northern and from Southern Africa, with the view of illustrating the characters which distinguish as species the birds from these several localities. Their specific distinction, he stated, on the authority of Professor Lichtenstein, had been pointed out, nearly thirty years since, by the Professor's father, who gave to the Cape bird the name of *Grus Regulorum*: this distinction has, however, not been generally known among ornithologists, although to those connected with the Society it has for some time been familiar, from observation both of numerous skins and of living individuals. In the bird of North Africa, for which the specific name of *pavoninus* will be retained, the wattle is small, and there is much red occupying the lower two thirds of the naked cheeks: in that of South Africa the wattle is large, and the cheeks are white, except in a small space at their upper part; the neck also is of a much paler slate colour than that of the North African species. He added that the latter characters had been observed to be permanent in an individual presented to the Society, in April 1829, from the collection of the late Marchioness of Londonderry, and which is still living at the Gardens: they exist also in both the individuals presented by Sir Lowry Cole.

The two species may be thus distinguished:

Genus ANTHROPOÏDES, Vieill.

** Occipite cristato, cristâ erectâ, effusâ, e plumis setaceis constante.*

ANTHROPOÏDES PAVONINUS, Vieill. *Anth. genis nudis, supernè albis infernè latè roseis; paleari minimo; gutturis plumis elongatis nigrescentibus.*

Ardea pavonina, *Linn. et Auct.*

Hab. in Africâ Septentrionali et Occidentali.

ANTHROPOÏDES REGULORUM. *Anth. genis nudis, albis supernè roseis; paleari magno; gutturis plumis elongatis pendulis cærulescenti-cinereis.*

Grus Regulorum, *Licht.*
Hab. in Africâ Meridionali.

It is probable that this latter species has been figured by Petiver and by Kolbe; but their representations are by no means sufficiently defined to authorize a positive reference to them.

Mr. Gray took occasion to remark that the oval form of the nostrils in the *crowned Cranes*, added to other distinguishing characters which have frequently been pointed out, might be regarded as indicating a generic difference between them and the *Demoiselle* and *Stanley Cranes*, in which the nostrils have the lengthened form usual in the genus *Grus*, a genus from which they scarcely differ except in the comparative shortness of their bill. For the group including the *crowned Cranes* the name of *Balearica* might, he thought, be retained; and that of *Anthropoïdes* be appropriated to the one comprehending *Anth. Virgo*, Vieill., and *Anth. paradisæus*, Bechst.

A collection of *crania* and skins of *Mammalia* from Nepâl, presented to the Society by B. H. Hodgson, Esq., Corr. Memb. Z. S., was exhibited. It contained skulls of the *Buansu, Canis primævus*, Hodgs., remarkable for the absence of a second tubercular molar tooth in the lower jaw, as described in a communication by the donor read at the Meeting on September 24th, (see page 111); of the *Thibetan Mastiff*, and of the *Pariah Dog*: of the *Indian Jackal* and of the *Indian Fox*, both of which are regarded by Mr. Hodgson as belonging to species hitherto undescribed, the molar teeth of the latter having in their acute tubercles much of an insectivorous character: and of the *Felis Nepalensis*, Vig. & Horsf.

Among the skins were those of a *Sciuropterus*, F. Cuv., as large as *Sci. nitidus*, Ej., and apparently new to science: of a *Sciurus*, Linn., also apparently new: and of a *Herpestes*, Ill., which Mr. Hodgson at present regards as a small variety of the common *Indian Ichneumon, Herpestes griseus*, Desm.

At the request of the Chairman, Mr. Gould exhibited a specimen of a *Toucan*, hitherto undescribed, and which he had recently acquired. It is nearly related to *Pteroglossus Aracari*, Ill., and to *Pter. regalis*, Licht.; and Mr. Gould pointed out the characters which distinguish it from those and other species. He proposed for it the name of

PTEROGLOSSUS CASTANOTIS. *Pter. suprà olivaceo-viridis, subtùs sulphureus; capite guttureque nigris; regione paroticâ femoribusque saturatè castaneis; uropygio, interscapulio, abdominisque fasciâ latâ coccineis; tectricibus caudæ inferioribus sordidè flavis; remigibus brunneis.*

Long. tot. 17½ unc; *rostri*, a rictu ad apicem, 5; *alæ*, 6¼; *caudæ*, 7½; *tarsi*, 1⅞.
Hab. in Brasiliâ.

The beak is depressed, of a deep straw yellow, with a broad triangular mark of black along its *culmen* for two thirds of its length, and a nearly similar mark of black on each side; its edges are strongly dentated, the intervals between the notches being black: the under mandible is black throughout: an abrupt line of yellow surrounds the base of the beak. The *tarsi* are of a dark lead colour.

Mr. Gould also exhibited a *Woodpecker*, which he regarded as new to science. He described it as

Picus flavinucha. *Pic. suprà viridis, subtùs fuscescens; vertice olivaceo; occipite nuchâque flavo cristatis; fronte, facie, colli lateribus, juguloque saturatè brunneis, hoc albo maculato; gulá sulphureá; caudá nigrá.*

Fœm. *gulá saturatè brunneá.*

Long. tot., 13 unc.; *alæ*, 6¾; *tarsi*, 1; *rostri*, a rictu ad apicem, 1¾.

The beak is somewhat feeble, slightly arched, pointed, and broad at the base. The feathers of the *occiput* and back of the neck are of a silky texture, and constitute a golden yellow crest, which is drawn out to a point, and is edged abruptly by the dark brown of the face, the sides of the neck and the ear-coverts.

It inhabits the Himalayan mountains and also the lower regions of India.

Captain Belcher laid on the table several specimens of a *Barnacle*, the *Pentalasmis striata*, Leach, remarkable for the great length of their peduncles, which exceeded two feet.

The following notes by Mr. Martin of a dissection of a *Puma*, *Felis concolor*, Linn., which recently died at the Society's Gardens, were read.

" Among animals of the feline genus so few points of anatomical difference are found to exist, that the notes of the dissection of one species (allowance being made for relative magnitude,) are closely applicable to that of almost any other. We can therefore only expect to trace out minor differences in structure; and these not among organs essentially connected with the habits and general characteristics of the genus, but with habits peculiar and specific. Hence perhaps we find in this group the greatest difference to obtain in the organs of voice; a circumstance which might naturally be expected, as some according modification must necessarily produce the deep-toned roar of the *Lion*, the snarl of the *Jaguar*, and the hissing cry of the *Puma*.

" The distance between the base of the tongue and the *larynx* in the *Lion*, has been brought more than once under the notice of the Society; in the *Jaguar*, this distance, comparatively speaking, is nearly as great; but in the *Puma*, an animal equal, or nearly so, in size to the *Jaguar*, the distance is reduced to an inconsiderable space, 1 inch or 1¼, according as the tongue is more or less protruded. In addition to this, it is worthy of observation, that the circumference of the *larynx* in the *Puma* is also very inconsiderable: compare, for example, the *larynx* of the *Jaguar* with that of the present animal, both natives of the wilds of the American continent. In the *Jaguar* we find a *larynx* indicating from its general magnitude considerable depth in the intonations of the voice, whereas in the *Puma*, if we take either its diameter, or its distance from the termination of the palate and base of the tongue, we are led to expect neither the roar of the *Lion* nor the growl of the *Jaguar*, but the shrill tones of an animal, ferocious indeed, but of all others of the genus perhaps the most stealthy and insidious. I am the more inclined to call attention to these differences, because I think that I have observed a kind of mutual correspondence between the voice and the habits of animals, a point well worthy minute investigation, and on which, on a future occasion, I design to offer a few observations.

" Leaving the *larynx* of the *Puma*, little of peculiar interest presented itself, except in the stomach, which, after the entrance of the *œsophagus*, became somewhat contracted, and then expanded suddenly, diminishing to a long pyloric portion as usual. Before being distended with air, the stomach on its internal surface was evidently contracted into longitudinal folds: its *parietes* were firm. Its length, following the greater curvature, was 2 feet, along the lesser curvature, 9 inches: its greatest circumference, 11 inches.

" The length of the intestines was 14 feet 6 inches, the small intestines measuring 12 feet, and the large 2 feet 6 inches; the length of the *cæcum* was 2 inches. The greatest diameter of the small intestines was 2 inches; of the *colon*, immediately below the *cæcum*, 4 inches; of the *rectum*, 5.

" The length of the animal, measured from the extremity of the jaws to the root of the tail, was 3 feet 2 inches.

" The large intestines were destitute of muscular bands. The *cæcum* was pointed, and had several large glands at its base.

" The liver consisted of a middle and two lateral lobes, each subdivided; the middle one into one large and two smaller portions. The gall-bladder, irregularly contracted, as if from disease, was seated in the cleft of the middle lobe of the liver: its secretion entered the *duodenum*, with that of the *pancreas*, 1¾ inch below the *pylorus*. The *pancreas* was flattened in form, and commencing 1½ inch below the *pylorus*, followed the course of the *duodenum* for 11 inches. The spleen was tongue-shaped, and 6 inches in length.

" The lungs consisted of five lobes: three on the right and two on the left side. The heart was 4½ inches long and 3 broad.

" The circumference of the *trachea* was 2¾ inches.

" The *epiglottis* was long and pointed.

" The *os hyoides* consisted of a slender middle portion, united to the points of the thyroid cartilage by two distinct and somewhat arched portions (one on each side), passing down to meet the point of the cartilage: to the *cranium* it was connected on each side by a chain of four slender portions, of which the last and smallest was cartilaginous, and the others bony.

" The only internal morbid appearances were those of the mesenteric glands, which were universally enlarged. The body was much emaciated and the skin diseased."

November 26, 1833.

John Hamilton, Esq., Vice-President, in the Chair.

Specimens were exhibited of a *Bat*, which had recently been obtained by the Society from the collection of the late Rev. Lansdown Guilding, Corr. Memb. Z. S.

Mr. Gray, in directing the attention of the Meeting to them, remarked on them as constituting the type of a new genus, for which he proposed, on account of the shortness of the nose-leaf, the name of

BRACHYPHYLLA.

Dentes incisores $\frac{4}{4}$, *superiorum* intermedii magni conici, approximati, externi minimi; *canini*, $\frac{1-1}{1-1}$; *molares* $\frac{5-5}{5-5}$, quorum anteriores duo utrinque utrinsecus spurii, superiores antici minimi.

Rostrum truncatum; *nasus* a facie sulco profundo sejunctus, *prosthemate* lato, plano; *labium* inferius excisum, excisuræ marginibus verrucosis.

Lingua elongata, undique verrucosa.

Cauda brevissima.

Patagium anale amplum, posticè profundè emarginatum, bi-tendinosum.

Genus *Glossophago*, Geoff., maximè affine.

"The cutting teeth are four in each jaw, of which the two upper central are large, conical and close together; the side ones very small, low and rudimentary; and the lower ones small, equal and closely pressed between the canines. The canines are large, the lower ones fitting before the upper; the upper ones very large, with a deep notch on the hinder side. The grinders are five on each side of either jaw, of which three are true and two false: the two lower false grinders on each side are equal; the front ones of the upper jaw are very small and rudimentary.

"The head is ovate: the face short and blunt: the end of the nose truncated, with a short broad flat nose-leaf, connected with the lips in front, and surrounded by a deep groove behind, separating it from the rest of the face; the groove is edged behind by a rounded callous ridge. The nostrils are ovate, rather large, open, and placed widely apart from each other, one being situated on each side of the middle of the nose-leaf. The lips are smooth, without any beard on the inner side of the angle of the mouth: the upper one is entire; the lower has a deep notch in the centre, which is bald, triangular, and edged with a series of close, short, rounded warts. The tongue is elongated, and is closely and minutely warty.

"The wings are large and broad. The thumb is long, two-jointed, free and sharply clawed; the index finger is composed of two, and the middle of four, bony joints.

"The interfemoral membrane is rather large, and is deeply notched behind.

"The tail is rudimentary, consisting of a single joint imbedded in the base of the interfemoral membrane. It has, in the female, a slight cartilaginous band extending beyond its tip, and separating behind into two diverging bands, one extending to the middle of each shin: in the male, these bands are distinct at their origin.

"The hinder feet are large; their toes are nearly equal, and are strongly clawed.

"This genus agrees with *Glossophaga* in most of its characters, and has the same warty-edged slit on the middle of the under lip, and the same elongated tongue: but it differs in the form and structure of the nose-leaf; in the tongue being covered with rough and closely set warts, which are not placed, as in that genus, in oblique plaits; and in the shape of the central upper incisors, which are elongated and conical, and not short and flat-topped and bevel-edged. In the form of its upper middle incisors it agrees with *Vampyrus soricinus*, Spix; but it is distinguished from that, and from all the other *Vampyri*, by the structure of its under lip and tongue, and by the hinder part of the nose-leaf being separated by a groove from the skin of the forehead. Its interfemoral membrane is somewhat like that of *Vamp. Spectrum*, Geoff., and has the same muscular bands.

BRACHYPHYLLA CAVERNARUM. *Brach. suprà badia, pilorum apicibus saturatioribus; infrà pallidè flavescenti-badia.*

Fœm. *pallidior.*

Long. *corporis* cum *capite*, 4½ unc.; *ulnæ*, 2½; *tibiæ pedis*que *postici*, in mare, 2½, in fœminâ, 2⅓; expansio *alarum*, 16.

Hab. apud St. Vincent's, Indiæ Occidentalis.

"The nose-leaf is oblong, transverse, notched and elevated behind. The *tragus* is triangular, elongated, crenulated on its outer and upper edge and 3-lobed. The face is rather bald in front, with scattered, rigid hairs; and there is a large convex wart, covered with rather rigid hairs, on the back part of the cheek just under the eyes. The wings are dark brown and bald; their front part and index fingers yellow, with a few scattered hairs on the outside of the thicker part near the loins and hinder members. The male is bay above, with the tips of the hairs darker; beneath it is pale yellowish bay. In the female the neck and wings are rather paler.

"This *Bat* inhabits caves in St. Vincent's according to the late Rev. Mr. Guilding, who proposed to call it *Vespertilio Cavernarum*."

Mr. Gray exhibited a drawing of a *Shell*, contained in the collection of Mr. Adamson of Newcastle. It was obtained from the base of the Parremo, near the Volcano of Tolyma, on the east slope of the Andes.

It may be thus characterized:

BULINUS ADAMSONII. *Bul. testâ ovato-conicâ, subtenui, purpurascenti-albidâ purpureo nebulosâ, maculis oblongis purpureis albisque bifasciatâ; anfractibus convexiusculis; aperturâ ovatâ,* *anticè subeffusá; labro subincrassato, purpureo; labio purpurascenti-nigro; columellá anticè rectá; gulá albá; periostraco olivaceo.*

Axis 3$\frac{3}{4}$ unc.; diameter 2.

This shell approaches most nearly to *Bal. Phasianella*, Val.; it is distinguishable by its bands, the dark colour of its inner lip, and the straightness of its pillar in front.

A paper was read, entitled, "Descriptions of some new Species of Cuvier's Family of *Brachiopoda*, by W. J. Broderip, Esq., V.P.G.S. and Z.S., F.R.S., L.S., &c."

The characters of these new species are as follows:—

Genus TEREBRATULA.

TEREBRATULA CHILENSIS. *Ter. testá suborbiculari, gibbá, albente, radiatim striatá, striis latioribus, margine subcrenulato, subflexuoso: long.* 1$\frac{2}{8}$, *lat.* 1$\frac{2}{7}$, *crass.* $\frac{4}{8}$ *poll.*

Hab. in sinu Valparaiso.

This species varies much in size and appearance. In the older shells the radiated *striæ* almost disappear; and very young individuals are nearly smooth and oblong; while those of intermediate growth have the *striæ* strongly marked.

Mr. Cuming found this *Terebratula* in the Bay of Valparaiso, at a depth ranging from sixty to ninety fathoms. The older shells were attached to rocks, and the younger to *Corallines* and *Fuci*.—W. J. B.

TEREBRATULA UVA. *Ter. testá ovato-oblongá, ventricosá, subglabrá, subdiaphaná, lineis concentricis substriatá; valvá perforatá subelongatá: long.* 1, *lat.* $\frac{4}{8}$, *crass.* $\frac{7}{12}$ *poll.*

Hab. in sinu Tehuantepec.

This *Terebratula* was found by Captain Dare, while dredging for *Meleagrinæ margaritiferæ*, attached to a dead sea-worn bivalve, at a depth of from ten to twelve fathoms, and on a bottom of sandy mud.—W. J. B.

Genus ORBICULA.

ORBICULA LAMELLOSA. *Orb. testá corneá, fuscá, suborbiculari, subdepressá, lamellis concentricis elevatis rugosá: long.* 1$\frac{1}{10}$, *lat.* 1 *poll.*

Hab. ad Peruviæ oras. (Iquiqui.—Bay of Ancon.)

This species was found by Mr. Cuming in groups, the individuals being in many instances piled in layers one over the other on a sandy bottom, at a depth ranging from five to nine fathoms. At Ancon they were found attached to dead shells, and also clinging to the wreck of a Spanish vessel of about 300 tons, which went down in the bay about twelve years ago. The sunken timbers (for the sheathing was gone to decay,) were covered with these shells, much in the same way that beams on land are sometimes invested with flat parasitic *Fungi*. At Iquiqui they were taken adhering to a living *Mytilus*.—W. J. B.

ORBICULA CUMINGII. *Orb. testá subconicá, suborbiculari, cras-*

siusculá, striis ab apice radiantibus numerosis; epidermide fuscâ: long. $\frac{7}{10}$, lat. $\frac{9}{10}$ poll.

Hab. ad Paytam Peruviæ, ad Sanctam Elenam, et ad Panamam.

The concentric lines of growth in this species are crossed by the numerous *striæ* which radiate from the *apex* of the upper valve. The under valve, which varies from convexity to flatness, is much the thinnest, and is only marked by the concentric lines.

Found by Mr. Cuming at the localities above given, attached to the lower sides of stones in sandy mud at low water, and in some instances at a depth of six fathoms. The remains of the *cilia* of the *branchiæ* give a bearded appearance to the border of the shell in many of the dried specimens, as in *Orb. lamellosa.*

Orb. Cumingii approaches nearest to *Orb. striata,* described by Mr. G. B. Sowerby in the 'Transactions of the Linnean Society.'—W. J. B.

Genus LINGULA.

LINGULA AUDEBARDII. *Ling. testá oblongá, glabrá, corneá, pallidè flavá, viridi transversim pictá, limbo anteriore rotundato, viridi: long.* $1\frac{3}{8}$, *lat.* $\frac{5}{10}$ *poll.*

Hab. ad Insulam Punam. (Bay of Guayaquil.)

The rounded anterior edge of this shell is green, and the transverse lines of that colour are produced by the progressive increase of the shell, which is smooth and parchment-like. In all the dried specimens the thin anterior edge is contracted into a square form, so as to produce a resemblance to a very square-toed shoe; but in its natural state this edge is rounded. A general contraction, moreover, gives the dried shells a narrower and more ventricose character than they really possess; and the remains of the *cilia* of the *branchiæ* give to their anterior edges a bearded appearance.

Mr. Cuming found this species, at about half-tide, in an extensive bottom of hard coarse sand, from four to six inches below its surface.—W. J. B.

LINGULA SEMEN. *Ling. testâ ovato-oblongá, crassiusculá, planá, albidâ, lævissimá, politá, limbo anteriore rotundato: long.* $\frac{4}{10}$, *lat.* $\frac{2}{10}$ *poll.*

Hab. ad Insulam Platam Columbiæ Occidentalis.

This shell, the only one I have seen, was dredged by Mr. Cuming in fine coral sand from a depth of seventeen fathoms. It may be a young individual; but the shell is so much firmer than it usually is in *Lingula* (so firm, indeed, as not to have contracted at all in drying), that I cannot but look on it as an undescribed species. In size and appearance it bears a near resemblance to a melon seed.

Mr. Cuming informs me that he found another specimen, about a line longer, at the same time and in the same place, but that he has unfortunately mislaid it.—W. J. B.

In illustration of Mr. Broderip's paper the *Shells* described in it were exhibited; as were also drawings of them. They form part of the extensive collection made by Mr. Cuming on the western coast of South America.

Mr. Owen read a paper "On the Anatomy of the *Brachiopoda* of

Cuvier, and more especially of the genera *Terebratula* and *Orbicula*."

The paper commences by a brief history of the formation of the order by Cuvier, and then refers to the anatomical particulars which have been recorded as regarding *Terebratula* by preceding writers. Among these Pallas seems to have given the best description of the animal. It is on one of this subdivision that the description given by Linnæus of the animal of his genus *Anomia* is founded.

Mr. Owen's materials for the anatomy of *Terebratula* consist of specimens of four species, three of which are inhabitants of the South Pacific Ocean (including one brought home by Mr. Cuming, and two by Captain P. P. King, R.N.); the fourth, *Ter. psittacea*, Brug., was brought from Felix Harbour, Boothia Peninsula, by Commander J. C. Ross, R.N.

The mantle adheres very closely to the valves: the lobe which corresponds to the perforated valve is traversed longitudinally by four large vessels; the opposite lobe is similarly traversed by two such vessels. Its margins are thickened, not as in the *Lamellibranchiate Bivalves* from contraction, but owing to a peculiar structure connected with respiration. They are puckered at regular distances, the puckerings being apparently caused by the insertions of delicate *cilia*, which pass as far within the mantle as they project out of it, but which are so minute as to be observable only by means of a lens. In the interspaces of the *cilia* the margin of the mantle is minutely fringed, and within the fringe is a canal, which extends along the whole circumference. From this canal the large vessels of the mantle lobes take their origin: they may be regarded as the branchial veins conveying the aerated blood to the two hearts, which are situated exterior to the liver, and just within the origin of the internal calcareous loop: they are accompanied in their course by much smaller vessels, probably the branchial arteries. Such is apparently the system of respiration in *Terebratula*.

The *viscera* occupy a very small space near the hinge. The alimentary canal commences by a small puckered mouth, situated immediately behind the folded extremities of the arms. It passes backwards, and expands into a membranous stomach, surrounded by the liver, a bulky gland of a green colour and minute follicular texture, which communicates with it by many orifices. The intestine passes down to the hinge, and then turns to the right side and terminates between the two mantle-lobes. No trace of a salivary gland was found.

The generation of *Terebratula* is that of the ordinary *Bivalves*. In two of the larger specimens the *ova* had insinuated themselves between the layers of the mantle, and partly surrounded the branchial vessels. When so far advanced they obscure the organization of the mantle which adapts it for respiration: this organization is consequently most satisfactorily observed in very young individuals.

Mr. Owen describes in detail the muscles, the arms, and the peculiar internal testaceous apparatus or loop connected with the hinge and supporting the arms. In the species which he examined, with the exception of *Ter. psittacea*, he finds that the loop possesses some elasticity, and when acted on by the muscles becomes in its reflected part sufficiently convex to press upon the perforated valve and separate it slightly from the opposite one; thus compensating for the absence of the thick arms of *Lingula*, which in their protrusion push open the valves, and also for that of the elastic fibres constituting the ligament of ordinary *Bivalves*.

The *Orbiculæ* examined by Mr. Owen consist of specimens of *Orb. lamellosa*, Brod.

Along the whole circumference of the valves shining *cilia* are seen projecting for an extent varying from 2 to 4 lines: they are consequently much longer than in *Terebratula* and in *Lingula anatina*, and are rather longer than in *Ling. Audebardii*, Brod. On examination under a high power they are observed to be beset with smaller *setæ*, which probably gives them greater power in determining the respiratory currents. The mantle is similarly vascular to that of *Terebratula*, there being, in the upper lobe, four principal trunks (comparatively, however, much shorter than in that genus); and two in the lower. These trunks terminate in sinuses, situated close to two strong tendinous membranes, which circumscribe the visceral mass, and to which the mantle-lobes firmly adhere. Here the veins of both mantle-lobes join, and the common trunk or sinus passes obliquely through the membrane, and may be plainly seen distributing *ramuli* over the liver and ovary.

The muscles and *viscera* form a rounded mass, situated in the posterior half of the shell. The mouth is seated between the base of the arms. The *œsophagus* passes obliquely through the tendinous wall of the *viscera* in a direction towards the upper valve: it becomes slightly dilated, and is then surrounded by the liver. The intestine is continued straight to the opposite end of the visceral cavity, is there again contracted, makes a sudden bend upon itself, and returns to the middle of the right side of the visceral belt, which it perforates obliquely, and terminates between the lobes of the mantle a little below the bend of the arm. The liver is of a beautiful green colour, and consists of a congeries of elongated follicles, closely compacted together, which communicate by numerous orifices with the stomach. As in *Terebratula*, there is no salivary gland.

In *Lingula Audebardii*, Brod., there is also no salivary gland; and Mr. Owen is therefore disposed to believe that the gland described as such in *Ling. anatina* by Cuvier, was only a portion of the liver, from which the colour had probably been removed by long maceration in spirit.

In the want of salivary glands the *Brachiopoda* would agree with the ordinary *Bivalves*. Destitute, like them, of any hard parts about the mouth for comminuting alimentary substances, glands for pouring in a fluid to blend with the food during that operation are not wanted.

The nervous system in *Terebratula* was not detected by Mr. Owen. In *Orbicula* two small *ganglia* were found on the side of the *œsophagus* next the perforated valve; from which two filaments, accompanying the *œsophagus* through the membranous wall, immediately diverge and pass exterior to the anterior shell muscles, proceeding with corresponding arteries to near the hearts, beyond which he could not trace them. A single small *ganglion* is situated on the opposite side of the *œsophagus*, but on a plane posterior to the preceding; this is probably the cerebral *ganglion* for giving off nerves to the free spiral extremities of the arms, close to the base of which it is situated.

Mr. Owen exhibited, in illustration of his paper, drawings of the several objects described in it.

The following Notes relative to the period of Uterine Gestation and the Conditiontof the new-born Fœtus in the *Kangaroo, Macropus major*, Shaw, were read by Mr. Owen.

"Perhaps there is no question in animal physiology that has given rise to more numerous and contradictory theories, and in which fewer facts have been well ascertained, than that which relates to the generation of the *Marsupial Animals*.

"In the present communication I propose to limit myself to the narration of some of the circumstances that have occurred in elucidation of this subject during a series of observations which have been made at the Gardens in Regent's Park during the past summer.

"All the *Kangaroos* at the Farm were for this purpose transferred from the Farm to the Gardens at the latter end of June. The whole stock consisted of two males and six females, all fully grown. The animals of different sexes were kept apart until they had become in some measure accustomed to the gaze of visiters, and reconciled to their new abode.

"It was to be expected that some accidents would occur in exposing so timid an animal, and one whose locomotion is of so violent a kind, to this change; and shortly after their arrival one of the females died in consequence of leaping against the wire fence. It is, however, probable, from the appearances observed on the *post mortem* examination of subsequent cases, that this, like the other individuals, was rendered highly excitable by great determination of blood to the brain. When the remainder had become more habituated to their new circumstances, the experiments were commenced, and the first step taken was to examine the pouches of all the females.

"The 1st female had previously been kept at the Gardens, and had a young one, which measured about 1 foot 2 inches from the nose to the root of the tail: this, of course, had quitted the nipple and the pouch, and now only returned occasionally to suck. There was no other young one in the pouch. The right superior nipple was the one in use; it was nearly 2 inches long and ⅓rd of an inch in diameter, the gland forming a large swelling at the base. The other three nipples were everted, and about ½ an inch in length.

"A 2nd female, from the Farm, had a young one attached to the lower nipple on the right side. It measured about 7 inches from the nose to the vent, was naked, with the skin of a bright pink colour, being still, in the language of M. De Blainville, a mammary fœtus. The nipple in use was 1½ inch long from the gland to the mouth of the fœtus; the rest were everted, and about the size of those in the first-mentioned female.

"The 3rd female had a mammary fœtus, about 4 inches long from the nose to the vent, adhering to the left lower nipple, covered like the preceding with a naked vascular integument, which probably assists in oxygenating the blood. The eyes in this, as well as in the preceding, were closed. The other nipples were everted, but were not all of the same length, the right lower nipple being shorter than the right upper one. I could not ascertain when this female had been impregnated.

"The 4th and 5th females had no young in the pouch; all the nipples were everted.

"From this examination two facts were ascertained; 1st, that the *Kangaroo*, at least in a state of captivity, has no particular period or season for breeding; and 2nd, that the upper as well as the lower nipples are used both during the period of mammary gestation and for the young animal's subsequent supplies of nourishment.

"With respect to the female No. 2., the following facts relative to her gestation were obtained from Joseph Fuller, Head Keeper at the Farm. She received the male on the 14th of September 1832; but copulation might also have occurred previously. On the 14th of October of the same year Fuller observed her looking sickly, and when the male approached her she scratched and repulsed him. He perceived much slime, like white of egg, passing from the *vagina*. This was about 3 p.m., when he was unfortunately called away on some business. In the evening, at 8 o'clock, suspecting that parturition had taken place, he examined her pouch, and found a young one attached to a teat: on being touched the young one dropped off to the bottom of the pouch. Next day he again examined her, and found the young one adhering to the nipple. It fell off a second time on being handled, and both Joseph and Devereux Fuller had the little one in their hands out of the pouch, and both assert that it was not more than 1 inch in length. It was again put into the pouch, and the mother was meddled with no more till the 3rd of November following. On that day Mr. Yarrell and myself visited the Farm, and on hearing this account we examined the female, and found the young one, now 3 inches long, adhering strongly to the nipple. On further questioning Fuller on the subject, he said, that when first he saw the young one it was covered with blood-clot or *coagulum*; but on the following day it was quite clean and dry, and moved its body vigorously. The mother still suckles one of the previous year.

"From Mr. Morgan's experiments it would appear that when the mammary fœtus has arrived at nearly the size of a fully grown *Norway Rat*, it will bear a separation from the nipple for two hours, and regain its hold. According to Fuller's statement it will bear a separation from the nipple, and again become joined to it, at what is now proved to have been a very short period after uterine gestation; and Mr. Collie's observations, in the 18th Number of the 'Zoological Journal', are in confirmation of the same opinion. It is still uncertain in what manner it regained the nipple, although in a subsequent experiment, where a similar fœtus was detached, the mother made many, but, as it appeared, unsuccessful, attempts to replace it.

"In order to ascertain precisely the period of gestation, as an essential guide to future experiments, the female No. 1. was selected, she being still suckling the young one of the previous year, and being known not to be impregnated. She was placed with the male only at such times as they could be watched.

"The *coitus* was observed on the 27th of August at 1 p.m. She was separated from the male the same day, and was kept in a distinct shed and paddock until parturition took place. In order to inure her to the examinations of the pouch when they should become indispensable, they were commenced six days after the copulation, and were repeated every morning and evening by James Hunt, the intelligent Keeper whose services were allotted to me by the Council during these investigations. At many of these examinations I was present, and the following are among my notes made on those occasions.

"Sept. 6th.—10th day of gestation. Pouch tolerably free from secretion; the right upper nipple about 2 inches long and ⅓rd of an inch in diameter; the young one, which has left the pouch, still sucking occasionally; the other nipples as when first examined.

"Sept. 11th.—15th day. No alteration in the pouch or nipples; the young one still sucking occasionally.

"Sept. 30th.—34th day. The young one that was sucking is dead. The nipple in use by it has begun to shrivel, and the brown secretion to form.

"Oct. 4th.—38th day. Hunt observed the female in the afternoon putting her nose into the pouch, and licking the entry. He examined her at 6 in the evening; but a slight increase of the secretion was the only perceptible change, and there was no appearance in the nipples indicative of approaching parturition.

"Oct. 5th.—39th day. Hunt examined the female at 7 a.m. and found the young one attached to the nipple. No blood or albuminous discharge could be detected on the litter, nor any trace of it on the fur between the *vagina* and orifice of the pouch. As the birth took place in the night, the mother had probably had time to clear away all indications of it:

"I repaired to the Gardens the same day and examined the pouch. The young one was attached to the left superior nipple: it resembled an earth-worm in the colour and semitransparency of its integument, and adhered firmly to the point of the nipple. It breathed strongly but slowly, and moved its fore legs when disturbed. Its body was bent upon the *abdomen*, its short tail tucked in between the hind legs, which were about one third shorter than the fore legs, but the three divisions of the toes were distinct. The whole length, from the nose to the end of the tail, would not exceed 1 inch 2 lines. A linear longitudinal mark of the *umbilicus* was apparent.

"It has been asserted by Barton that the young of the *Opossum* immediately after birth are in a much more imperfect condition than that above described in the *Kangaroo*, being merely gelatinous corpuscles, comparable to a *Medusa*; but the later observations of Dr. Rengger on an *Opossum* (*Didelphis Azaræ*, Temm.,) nearly allied to the *Virginian* species (*Did. Virginiana*, Cuv.,) accord as to the condition of the new-born fœtus with what we have now been able to ascertain with accuracy is the condition of the new-born *Kangaroo*.

"Oct. 9th.—I again examined the pouch; the young one was evidently grown, and respired vigorously. I determined to detach it from the nipple for the following reasons: 1st, to decide the nature of the connexion between the fœtus and nipple; 2nd, to ascertain, if possible, the nature of the mammary secretion at this period; 3rd, to try whether so small a fœtus would manifest anything like voluntary action to regain the nipple; and, lastly, to observe the actions of the parent herself to effect the same purpose, as we might presume they would be instinctively analogous to those by means of which the fœtus was originally applied to the nipple, supposing that to take place through the agency of the mother.

"An organical connexion by vessels between the mammary fœtus and the nipple being a necessary consequence of the truth of Dr. Barton's assertion as to the condition of the product of generation at uterine birth, this has been much insisted upon; a discharge of blood has been described as a concomitant of marsupial birth; and even the anastomoses of the maternal vessels with those of the fœtus have been speculated upon. (See *Mém. du Muséum*, tom. ix. p. 393.)

"The dissections of the mammary fœtus of the *Kangaroo* by Mr. Hunter, showing the relation of the nipple to its tongue and mouth, the passage of the *larynx* into the posterior *nares*, the absence of the *urachus* and umbilical vessels, &c., tended indeed to disprove the theory of the vascular connexion; and the observations of Mr. Morgan and Mr. Collie, with the testimony of Joseph Fuller, were completely subversive of it. Nevertheless it was desirable to have ocular demonstration of the real state of the facts at this early period of the young animal's existence.

"It was removed from the nipple without the slightest trace of laceration of continuous vessels, or of any kind of connecting substance: but it adhered more firmly than I had been led to expect from Fuller. After it was detached, a minute drop of serous milk appeared on pressure at the point of the nipple: this was the smallest part of the nipple, and was not swollen or clavate; about half a line had entered the mouth of the fœtus.

"The young one moved its extremities vigorously after being detached, but made no effort to apply its legs to the fur or skin of the mother so as to creep along: it seemed perfectly helpless. It was deposited at the bottom of the pouch, and the mother was liberated and carefully watched. She immediately showed symptoms of uneasiness, stooping down to lick the orifice of the *vagina*, which she could easily reach, and scratching the exterior of the pouch with her fore paws. At length she grasped the sides of the opening of the *marsupium* with her fore paws, and drawing them apart, just as one would open a bag, she thrust her head into the cavity as far as her eyes, and could be seen moving it about in different directions. During this act she rested on her tripod, formed by the *tarsi* and tail. She occasionally lay down, but in that posture never meddled with the pouch: when stimulated to do so she immediately rose, and repeated the process of drawing open her pouch and inserting therein her muzzle, which she sometimes kept in for half a minute at a time. I never observed her put her fore legs, or either of them, into the pouch; these were invariably employed to widen the orifice, or in scratching the exterior. When she withdrew her head, she generally concluded by licking the orifice of the pouch and swallowing the secretion.

"After repeating the above act of insertion at least a dozen times, she lay down and seemed at ease. When she had rested quietly about a quarter of an hour we examined her again, and found the young one not at the bottom of the pouch, but within 2 inches of the nipple. It was moving its extremities, and respiring as vigorously as before. I attempted to replace it on the nipple, but without success; it was therefore left in the pouch, and the mother was released.

"My engagements prevented me from visiting the Gardens until the day but one after this examination, when at 10 a.m. I examined the *marsupium*; but the fœtus was gone. We searched very carefully every portion of the litter, &c., in the hope of finding it, but without success. I concluded, therefore, that the fœtus had died, and that the mother had probably eaten it.

"From what I observed of the mother after the separation of the fœtus, I should conclude that parturition takes place in the erect and not in the recumbent posture; and on perceiving the ease with which she can reach with her mouth the orifices of the *vagina* and pouch, a means adequate to the removal of the young from the one to the other became obvious. I should suppose the fore paws not to be used for the transmission of the fœtus, but to keep open the pouch ready for its reception, while the mouth would be the means by which it would be deposited therein, and perhaps held over a nipple till the mother felt the sensitive extremity grasped by the young one.

"This mode of removal is consistent with analogy. *Cats, Dogs* and *Mice* transport their young by the mouth.

"I ought, perhaps, to have forborne this hypothesis when an opportunity of actually observing the process may so soon be afforded; but it was suggested by observing the actions of the mother after an artificial separation of the fœtus from the nipple, and accords with the phænomena better, I think, than any that have previously been proposed. There is no internal passage; there is no power of bringing the mouth of the *vagina* in contact with that of the pouch, either in the living or dead *Kangaroo*, without lesion of the parts; the fore paws could not so effectually protect the tender embryo from the external air as the lips, nor so safely ensure its passage; and the young one itself did not by any of its actions give the idea of its having the power of creeping up along the fur to the pouch or nipple.

"Where, however, the structure of the pouch, as in *Perameles* and some South American *Opossums*, is different, the mother's aid may be less necessary; but the period of gestation being now ascertained, every endeavour will be made to clear up this part of the problem *ex visu*."

December 10, 1833.

William Yarrell, Esq., in the Chair.

Specimens were exhibited of *Nyctinomus acetabulosus*, Geoff.; an *Ibis*, apparently *Ibis religiosa*, Cuv.; and a *Chamæleon*, *Chamæleo verrucosus*, Cuv. They were presented to the Society by Charles Telfair, Esq., Corr. Memb. Z. S., by whom they were obtained from Madagascar.

Colonel Sykes placed on the table his specimen of the *wild Dog* of Dukhun, *Canis Dukhunensis*, Sykes, for the purpose of comparing it with a skin of the *wild Dog* of Nepâl, *Canis primævus*, Hodgs., recently presented to the Society by B. H. Hodgson, Esq., Corr. Memb. Z. S. He showed that the two *Dogs* are perfectly similar in their general form, and in the form of the *cranium*; and that in his specimen, equally with that of Mr. Hodgson, the hinder tubercular tooth of the lower jaw is wanting. The only differences remarkable between the two specimens is in the quality and colour of the fur, that of the *Dukhun Dog* being paler and less dense than that of the individual from Nepâl. These differences, depending probably on climate and individual peculiarity, cannot be regarded as sufficient to indicate a distinction between the two races. Identical as they are in form and habits, Col. Sykes considers them as belonging to one species. A short notice of the *Dukhun Dog*, communicated by him to the Committee of Science and Correspondence, was published in its 'Proceedings,' Part I. p. 100; and a detailed account of it, read by him before the Royal Asiatic Society, has just appeared in the Transactions of that body.

At the request of the Chairman, Mr. Gould exhibited a series of *Eurylaimi*, Horsf., in illustration of a paper "On an undescribed Species" of that genus, which he characterized as

EURYLAIMUS LUNATUS. *Eur. capite cristato; cristâ genisque brunneis; fasciâ supraciliari nigrâ; gulâ cinerascente; collo, interscapulio, pectore, abdomineque cærulescenti-cinereis; tergo uropygioque castaneis; parauchenio lunâ albâ notato; scapularibus nigris; alis lazulinis, ad apicem fasciâ latâ nigrâ notatis, remigibus prioribus quatuor albo apiculatis acutis, secundariis abruptis tribus interioribus castaneis; caudâ nigrâ, rectricibus tribus externis apices versus albis.*

Fœm. *Lunulâ ad colli latera nullâ.*

Long. tot. 6½ unc.; *rostri*, a rictu ad apicem, ¾; *rostri* ad basin lat. ⅝; long. *alæ*, 3½; *caudæ*, 2; *tarsi*, ⅝.

Hab. apud Rangoon.

The beak is dark olive inclining to black, and is lighter at its edges and along the *culmen*. The *tarsi* are brownish black.

The beautiful semilunar mark which extends across the whole of each side of the neck, consists of silvery white feathers, elevated above the rest, and abruptly terminated as if clipped by scissors.

The exhibition was resumed of the new species of *Shells* contained in the collection made by Mr. Cuming on the Western Coast of South America and among the Islands of the South Pacific Ocean. Those exhibited on the present evening were accompanied by characters by Mr. G. B. Sowerby, and consisted of the following species, thirty-six in number, of the

Genus PLEUROTOMA.

PLEUROTOMA MAURA. *Pleur. testá turritá, acuminatá, fusco-nigricante; anfractibus duodecim, medio tuberculatis, infrà punctato-striatis, supernè depressione sinum labii sequente; canali recurvá: long.* 1·9, *lat.* 0·55 *poll.; long. aperturæ* 0·8.

Hab. ad Insulam Platam Columbiæ Occidentalis.

Two specimens were brought up from a depth of fourteen fathoms in coral sand.—G. B. S.

PLEUROTOMA UNIMACULATA. *Pleur. testá turritá, acuminatá, albá, anfractûs ultimi dorso fusco-unimaculato; anfractibus tredecim, medio tuberculatis, tuberculis elongatis, ultimi tuberculis in costellam inferam confluentibus; aperturá brevi, labio externo expanso, sinu superiore profundo, inferiore obsoletiore; labio interno supernè callum tuberculiformem efformante: long.* 1·4, *lat.* 0·5 *poll.; long. apert.* 0·6.

Hab. ad oras Americæ Centralis et Occidentalis.

Found in sandy mud, in from eight to sixteen fathoms, at Monte Christe, Guacomayo and Salango.—G. B. S.

PLEUROTOMA ROSEA. *Pleur. testá turritá, acuminatá, albidá, anticè roseo tinctá; anfractibus undecim, supernè connatis, medio tuberculiferis, tuberculis ovatis, anfractûs ultimi in costellas desinentibus; aperturá brevi, labio externo expanso, sinu superiore profundo, inferiore obsoletiore; canali brevi, reflexá: long.* 1·15, *lat.* 0·5 *poll.*

Hab. ad Salango et ad Montem Christi.

A delicately coloured species, very like the last in shape.

Found in sandy mud in from twelve to sixteen fathoms.—G. B. S.

PLEUROTOMA CLAVULUS. *Pleur. testá subulatá, lævi, albá, fusco variegatá, infrà incrassatá; anfractibus novem, suturis connatis, ultimo crasso; aperturá ovali, labio externo incrassato, reflexo, emarginaturá subcirculari posticá; epidermide tenui: long.* 0·9, *lat.* 0·35 *poll.*

Hab. in Sinu Montijæ Americæ Centralis.

Found in sandy mud at a depth of seventeen fathoms.—G. B. S.

PLEUROTOMA RUDIS. *Pleur. testá turritá, crassá, rudi, fuscá; anfractibus decem, medio coarctatis, suprà infràque tuberculatis,* *tuberculis inferioribus supernè albo maculatis; anfractu ultimo subdistorto, pone aperturam tuberculo magno; aperturâ ovali, labio externo tenui, sinuoso: long.* 1·3, *lat.* 0·55 *poll.*

Hab. ad Montem Christi Columbiæ Occidentalis.

Found under stones.—G. B. S.

Pleurotoma Oxytropis. *Pleur. testâ turrito-subulatâ, brunnescente; anfractibus decem, spiraliter carinatis, carinâ medianâ albicante, conspicuâ, interstitiis decussatis; aperturâ oblongâ, canali rectâ, elongatâ, emarginaturâ laterali in carinam medianam decurrente: long.* 1·8, *lat.* 0·5 *poll.*

Hab. ad Panamam et ad Portam Portreram.

Found in sandy mud at from thirteen to twenty fathoms' depth.—G. B. S.

Pleurotoma maculosa. *Pleur. testâ oblongo-fusiformi, turritâ, albido-cœrulescente, fusco maculosâ; anfractibus undecim, lævigatis, medio tuberculiferis, tuberculis uniserialibus; aperturâ oblongâ, emarginaturâ laterali posticali (seu supra tubercula efformatâ); canali brevi; columellâ rectiusculâ: long.* 2·2, *lat.* 0·6 *poll.*

Hab. ad Montem Christi Columbiæ Occidentalis.

One specimen only was dredged in sandy mud at a depth of sixteen fathoms. The aperture is about two fifths of the length of the shell.—G. B. S.

Pleurotoma albicostata. *Pleur. testâ acuminato-pyramidali, roseâ; anfractibus novem, lævibus, longitudinaliter costatis, costis confertis albis; aperturâ brevi, emarginaturâ posticali; canali brevissimâ: long.* 0·9, *lat.* 0·3 *poll.*

Hab. ad Insulas Gallapagos.

A very elegant small species, found in fine coral sand at a depth of six fathoms.—G. B. S.

Pleurotoma clavata. *Pleur. testâ acuminato-pyramidali, roseo-albicante; anfractibus decem, lævibus, longitudinaliter subobsoletè tuberculato-costatis; aperturâ brevi, latiusculâ; emarginaturâ posticali: long.* 1·, *lat.* 0·3 *poll.*

Hab. ad Xipixapi Columbiæ Occidentalis.

A few specimens were found in sandy mud at a depth of ten fathoms.—G. B. S.

Pleurotoma bicolor. *Pleur. testâ oblongâ, pyramidali, fuscâ, albicante cingulatâ; anfractibus sex vel septem, longitudinaliter costatis, spiraliter sulcatis, costis posticè tuberculiferis; aperturâ brevi, margine crenatâ, emarginaturâ posticali; canali brevissimâ: long.* 0·85, *lat.* 0·3 *poll.*

Hab. ad Panamam et ad Insulas Gallapagos.

Found under stones at Panama, and dredged from a sandy floor at a depth of eight fathoms at the Gallapagos Islands.—G. B. S.

Pleurotoma splendidula. *Pleur. testâ elongato-pyramidali, roseo-fuscescente; anfractibus undecim, lævigatis, costis longitudinalibus obliquis, medio prominulis, subconfertis, albis; anfrac-*

tûs ultimi dorso fusco, planulato; aperturá brevi, canali brevissimá; emarginaturá posticali: long. 1·2, *lat.* 0·35 *poll.*

Hab. ad Insulas Gallapagos.

From a depth of six fathoms in fine coral sand.—G. B. S.

Pleurotoma olivacea. *Pleur. testá fusiformi, olivaceá, unicolore; spirá acuminato-pyramidali; anfractibus novem, supernè lævibus, infrà tuberculosis et spiraliter striatis, ultimo anticè striato; aperturá oblongá, anticè canalem efformante; labio externo tenui intùs striato; emarginaturá labii externi posticali; suturis connatis: long.* 2·4, *lat.* 0·8 *poll.*

Hab. ad Salango et ad Sanctam Elenam Columbiæ Occidentalis.

Found in sandy mud at from five to twelve fathoms.— G. B. S.

Pleurotoma cincta. *Pleur. testá crassá, oblongá, nigrá; anfractibus novem, supernè lamellá spirali, infrà cingulo flavo mediano crenato, ultimo cingulis duobus flavis, superiorè crenato, lineisque tribus elevatis crenatis; aperturá brevi; canali brevissimá: long.* 0·7, *lat.* 0·3 *poll.*

Hab. ad Montem Christi et ad Xipixapi.

Found in sand and gravel at a depth of seven fathoms.—G. B. S.

Pleurotoma bicanalifera. *Pleur. testá turritá, gracili, tenui; anfractibus novem, longitudinaliter costellatis, costellis graniferis; aperturá oblongá, utrinque canaliferá, labio externo latè reflexo: long.* 0·8, *lat.* 0·3 *poll.*

Hab. ad oras Americæ Centralis.

Dredged from a depth of ten fathoms in sandy mud; from the Bay of Montija.—G. B. S.

Pleurotoma cornuta. *Pleur. testá oblongo-pyramidali, apice acuto; anfractibus sex vel septem, supernè crenatis, infrà longitudinaliter costatis, transversim concinnè striatis; aperturá oblongá, canali brevi; peritremate posticè incrassato, in cornu breve producto: long.* 0·7, *lat.* 0·3 *poll.*

Hab. ad Sinum Caraccas Columbiæ Occidentalis.

Found in sandy mud at a depth of ten fathoms.—G. B. S.

Pleurotoma rugifera. *Pleur. testá oblongo-pyramidali, apice acuto; anfractibus octo vel novem, supernè crenatis, medianè longitudinaliter costellatis, ultimi dorso rugifero; aperturá brevi; labio externo incrassato, emarginaturá posticali profundá: long.* 0·7, *lat.* 0·2 *poll.*

Hab. ad Insulas Gallapagos.

Dredged in six fathoms water among fine coral sand.

This species varies much in colour.—G. B. S.

Pleurotoma modesta. *Pleur. testá ovato-subcylindraceá, fulvá, apice subulato-pyramidali; anfractibus sex vel septem, transversim carinulatis, carinulis crenatis; aperturâ canalique brevibus, emarginaturá laterali pone medium labii positá: long.* 0·7, *lat.* 0·25 *poll.*

Hab. ad Real Llejos et ad Insulam Annaa.

Dredged in sandy mud at eight fathoms' depth.—G. B. S.

Pleurotoma discors. *Pleur. testâ turritâ, fuscâ; anfractibus decem vel undecim, supernè prope suturam unicarinatis, infrà nodulosis, medianè lævibus; ultimo anticè transversim lineato; varice ante aperturam conspicuo; aperturâ brevi, ovatâ, emarginaturâ profundâ ante carinam anfractuum: long.* 1·, *lat.* 0·35 *poll.*

Hab. ad Insulam Platæ Columbiæ Occidentalis.

A single specimen was dredged in seventeen fathoms among coral sand.—G. B. S.

Pleurotoma pallida. *Pleur. testâ turritâ, albicante; anfractibus undecim, subrotundatis, creberrimè costellatis, sulcato-decussatis, supernè serie unicâ punctulorum impressorum ante costellas positâ; aperturâ brevissimâ, emarginaturâ profundâ, posticali: long.* 0·85, *lat.* 0·3 *poll.*

Hab. ad Portam Portreram Americæ Centralis.

Found in thirteen fathoms, on a sandy muddy floor.—G. B. S.

Pleurotoma aterrima. *Pleur. testâ acuminato-pyramidali, aterrimâ; anfractibus octo, supernè unicarinatis, infrà crenulatis, ultimo serie unicâ medianâ tuberculorum, infrà striis graniferis duabus; aperturâ intùs nigrâ, emarginaturâ laterali inter carinam superiorem et seriem tuberculorum anfractûs; canali brevissimâ: long.* 0·8, *lat.* 0·35 *poll.*

Hab. ad Montem Christi Americæ Occidentalis.

Found under stones.—G. B. S.

Pleurotoma nigerrima. *Pleur. testâ acuminato-pyramidali, nigerrimâ; anfractibus octo, supernè planulatis, prope suturam crenatis, infrà costis longitudinalibus ornatis, ultimi costis decurrentibus; aperturâ nigrâ, supernè callositate munitâ; canali longiusculâ, subreflexâ: long.* 0·8, *lat.* 0·35 *poll.*

Hab. ad Panamam.

Dredged in sandy mud in six and ten fathoms.—G. B. S.

Pleurotoma adusta. *Pleur. testâ acuminato-pyramidali, fuscâ; anfractibus decem supernè planulatis, medianè tuberculiferis, tuberculis longitudinaliter subcompressis, ultimo infrà granoso-striato; aperturâ brevi, sinu posticali; canali brevissimâ: long.* 0·7, *lat.* 0·3 *poll.*

Hab. ad Montem Christi Columbiæ Occidentalis.

Found under stones.—G. B. S.

Pleurotoma Turricula. *Pleur. testâ acuminato-pyramidali, fuscâ; anfractibus decem, supernè serie unicâ tuberculorum, infrà longitudinaliter costatis, costis decussatis, ultimi costis decurrentibus supernè tuberculiferis; aperturâ latiusculâ, intùs purpureo-nigricante; canali brevi, latâ; sinu laterali inter seriem tuberculorum et costas constructo: long.* 1·7, *lat.* 0·7 *poll.*

Hab. ad Sanctam Elenam Columbiæ Occidentalis.

From sandy mud at a depth of six fathoms.—G. B. S.

Pleurotoma corrugata. *Pleur. testâ acuminato-pyramidali, fuscâ; anfractibus decem, supernè prope suturam granoso-unicarinatis, infrà longitudinaliter costatis, costis decussatis, ultimi*

costis decurrentibus; aperturá brevi, sinu laterali superiore; canali brevi, latá: long. 1·1, *lat.* 0·4 *poll.*

Hab. ad Sinum Montijæ et ad Portam Portreram.

Found in muddy sand at ten fathoms' depth.—G. B. S.

PLEUROTOMA INTERRUPTA. *Pleur. testâ oblongo-pyramidali, pallescente; anfractibus octo, spiraliter sulcatis, cingulatis, cingulo mediano nigro, albo articulato; aperturá canalique brevibus, sinu laterali postico: long.* 0·6, *lat.* 0·2 *poll.*

Hab. ad Insulam Annaa.

Found under coral on the reefs.—G. B. S.

PLEUROTOMA EXCENTRICA. *Pleur. testá oblongo-pyramidali, brunneá; anfractibus sex, duobus anticis excentricis, supernè prope suturam unicarinatis, cariná undulatá, infrà spiraliter sulcatis et longitudinaliter costatis; aperturá brevi, subtrigoná, peritremate distincto, labii externi margine undulato; sinu laterali postico: long.* 1·2, *lat.* 0·5 *poll.*

Hab. ad Insulas Gallapagos.

Found in coral sand at the depth of six fathoms.—G. B. S.

PLEUROTOMA INCRASSATA. *Pleur. testâ crassá, acuminato-pyramidali, nigricante; anfractibus novem vel decem, supernè prope suturam obsoletè unicarinatis, cariná interruptá, infrà longitudinaliter costellatis, costellis granosis, lineis elevatiusculis spiralibus decussatis; aperturá brevi, sinu laterali postico; canali brevi, obtusá: long.* 2·3, *lat.* 0·8 *poll.*

Hab. ad Panamam et ad Montem Christi.

Dredged in from six to ten fathoms from sandy mud.—G. B. S.

PLEUROTOMA DUPLICATA. *Pleur. testá acuminato-turritá, gracili, pallidá, epidermide corneá fuscá; anfractibus undecim vel duodecim, supernè prope suturam lineá elevatá unicá, in medio tuberculato-costatis, lineis duabus elevatis, binis decussatis; ultimo infrà inconcinnè striato; aperturá brevi, sinu laterali postico; canali brevi: long.* 1·6, *lat.* 0·6 *poll.*

Hab. ad Portam Portreram et in Sinu Montijæ Americæ Centralis.

Dredged from a sandy muddy floor at ten fathoms' depth.—G. B. S.

PLEUROTOMA UNICOLOR. *Pleur. testá crassiusculá, oblongo-pyramidali, nigrá; anfractibus octo, lævibus, supernè prope suturam serie granularum unicá, infrà longitudinaliter costatis; aperturá brevi; canali brevissimá; sinu laterali postico infra seriem granularum: long.* 0·85, *lat.* 0·3 *poll.*

Hab. ad Panamam.

Dredged in from six to ten fathoms on a sandy muddy floor.—G. B. S.

PLEUROTOMA RUSTICA. *Pleur. testá rudi, crassiusculá, oblongo-pyramidali, fusco-nigricante; anfractibus septem, supernè prope suturam unicarinatis, infrà longitudinaliter costatis, costis numerosis acutis, ultimi costis lineato-decussatis, decurrentibus;*

aperturá brevi; canali brevissimá; sinu laterali postico, rotundato: long. 1·1, *lat.* 0·4 *poll.*

Hab. sub lapidibus ad Xipixapi Columbiæ Occidentalis.—G. B. S.

PLEUROTOMA GRANULOSA. *Pleur. testá turrito-pyramidali, brunnescente; anfractibus novem vel decem, supernè prope suturam lævibus, tumidiusculis, infrà rotundato-costatis, costis lineato-decussatis, lineis decussantibus minutissimè granulosis; aperturá brevi; canali brevi, latá; sinu laterali postico, rotundato: long.* 0·75, *lat.* 0·25 *poll.*

Hab. ad Sinum Montijæ et ad Panamam.

Dredged in sand from a depth of eight fathoms.—G. B. S.

PLEUROTOMA VARICULOSA. *Pleur. testá gracili, turrito-pyramidali, fuscescente; anfractibus septem vel octo, rotundatis, supernè prope suturam lævibus, infrà longitudinaliter costatis, costis decussatis, granosis; aperturá brevi, ovali, basi coarctatá; canali breviusculá; labio externo tenui, variculá externè instructo: long.* 0·6, *lat.* 0·2 *poll.*

Hab. ad Sinum Montijæ Americæ Centralis.

Dredged in sandy mud at ten fathoms' depth.—G. B. S.

PLEUROTOMA NITIDA. *Pleur. testá gracili, turrito-pyramidali, brunneá; anfractibus septem vel octo, rotundatis, lævibus, nitidis, longitudinaliter concinnè costellatis, et striatis; aperturá canalique brevibus; suturá crenulatá; sinu laterali postico, mediocri: long.* 0·6, *lat.* 0·15 *poll.*

Hab. ad Sinum Montijæ Americæ Centralis.

Dredged in sandy mud at ten fathoms' depth.—G. B. S.

PLEUROTOMA COLLARIS. *Pleur. testá acuminato-pyramidali, atrá; anfractibus octo, supernè prope suturam obsoletè unicarinatis, infrà serie unicá granularum, cingulum efformante albidum, ultimo infrà granulifero, granulis seriatim ordinatis, serie tertiá albicante; aperturá brevi; canali brevissimá, latá: long.* 0·5, *lat.* 0·2 *poll.*

Hab. ad Sinum Caraccensem Columbiæ Occidentalis.

Dredged in eight fathoms from muddy sand.—G. B. S.

PLEUROTOMA HEXAGONA. *Pleur. testá gracili, acuminato-pyramidali, olivaceo-fuscá; anfractibus decem, hexagonis, lævibus, tuberculosis, tuberculis per series sex obliquè ordinatis; anfractu ultimo majori, infrà spiraliter striato; aperturá canalique brevibus; sinu laterali postico, mediocri: long.* 0·95, *lat.* 0·35 *poll.*

Hab. ad Guacomayo Americæ Centralis.

A single specimen was dredged in thirteen fathoms water among sandy mud.—G. B. S.

PLEUROTOMA FORMICARIA. *Pleur. testá oblongo-acuminatá, subcylindraceá, brunneá; anfractibus quinque vel sex, lævibus, costatis, costis majoribus, distinctis; aperturá longitudinali, ovatá; canali brevissimá, latá; sinu laterali posticali, parvo: long.* 0·4, *lat.* 0·1 *poll.*

Hab. ad Iquiqui Peruviæ sub lapidibus.—G. B. S.

The skins were exhibited of a *Lion* and *Lioness* killed in Guzerat by Captain Walter Smee, who, at the request of the Chairman, stated that they were selected from among eleven obtained by him in the same country, eight of which he had brought with him to England. The *Lion* is distinguished from those previously known by the absence of a mane from the sides of the neck and shoulders, the middle line of the back of the neck being alone furnished with longer hairs, which are erect like those in the same situation in the *Cheetah, Felis jubata,* Schreb. The under surface of the neck has long, loose, silky hairs, and there is a tuft at the angle of the anterior legs.

Captain Smee remarked that the existence in Guzerat of a *maneless Lion* had been known thirty years since by Colonel Sykes, and that Olivier had seen at Bagdad a similar animal, which was understood to have been brought thither from Arabia; but that hitherto, he believed, no skin of such a race had fallen under the observation of naturalists in Europe. Besides the absence of the extensive mane, it has to distinguish it from the ordinary *Lion,* a somewhat shorter tail, furnished at its tip with a much larger brush.

Regarding it as a strongly marked variety of the *Lion* hitherto known, Captain Smee proposed for it the following characters:

Felis Leo, Linn., Var. Goojratensis. *Jubâ maris cervicali brevi, erectâ; caudæ flocco apicali maximo nigro.*

Hab. in Guzerat (et in Arabiâ?).

A male measured, including the tail, 8 feet 9½ inches in length. His total weight, exclusive of the entrails, was 4½ cwt.

The *maneless Lion* extends in Guzerat through a range of country about forty miles in length, where it is known as the *Ontiah Baug* or *Camel Tiger,* a name derived from its colour. In the hot months it is found in the low bushy wooded plains that skirt the Sombermutty and Bhardar rivers, from Ahmedabad to the borders of Cutch. It is destructive to cattle, but does not appear to attack man. When struck by a ball it exhibits great boldness, standing as if preparing to resist its pursuer, and then going off slowly, and in a very sullen manner; unlike the *Tiger,* which, on such occasions, retreats springing and snarling.

Captain Smee entered into various details respecting the animals exhibited by him, comprehending the heads of a paper "On the *maneless Lion* of Guzerat," which he had prepared for the Society.

The following notes by Mr. Martin on the anatomy of the *Grison, Galictis vittata,* Bell, (*Gulo vittatus,* Desm.,) were read. They are derived from the examination of an individual which recently died at the Society's Gardens.

"The animal was a male, measuring from the nose to the insertion of the tail 1 foot 6 inches; the length of the tail was 6½ inches. As in the *Mustelidæ* generally, the intestines exhibited no division into small and large, except that the *rectum* became gradually increased in circumference. The total length of the intestines was 4 feet 5 inches. The stomach, when moderately distended with air, measured

10¼ inches in its greatest circumference, 13 along its greater, and 4¼ along its lesser curve. The *omentum* was thin and irregularly puckered together. At about 5 inches from the *anus* commenced a group of thickly crowded mucous follicles, occupying a space of 4 inches in length. The *anus* was furnished with two glands, of the size each of a nutmeg, and containing a fluid of the consistence and colour of liquid honey, and of a most intolerable odour: the orifice or duct of these glands opened just within the verge of the *anus*.

" The liver was tripartite, the middle portion being divided into one large and one small lobe: on the under side of the large lobe, in a deep furrow, was situated the gall-bladder, of a moderate size, and somewhat elongated form. The biliary secretion entered the *duodenum* 1¼ inch below the *pylorus*.

" The *pancreas* was long, flat and narrow; beginning in a curved form near the *pylorus*, and following the course of the *duodenum* for about 4 inches.

" The spleen was loosely attached to the stomach, tongue-shaped, and in length 6 inches.

" The lungs consisted of three right and two left lobes. The heart was of an obtuse figure; it measured in length 1¼ inch, and in breadth 1 inch. The primary branches of the *aorta* were as follow: 1st, a right branch, or *arteria innominata*, which, running for ¼ inch, gave off the two carotids and the right subclavian; 2ndly, a left branch, passing to form the right subclavian.

" The *epiglottis* was acuminate, and in close approximation to the tongue, which was tolerably smooth, with a crescent of distinct fossulate *papillæ* at its base. The *os hyoides* was united by a succession of four bones on each side to the skull.

" The kidneys were of an oval form, the right being half its length higher than the left; the length of each was 1½ inch. The *tubuli* entered the *pelvis* of the kidney by a single large conical *papilla*. The suprarenal glands were small.

" The *testes* were each as large as a small nutmeg; the *cremaster* muscle, embracing the spermatic cord as it emerges from the ring, was very distinct. The *penis* had been injured in removing the skin of the animal; its length from the *pubes* was about 3¼ inches, and its muscles were very distinct. It contained, as in the *Dog*, a slender bone, 1¾ inch long, commencing pretty stout, then narrowing as it proceeded till near the *apex*, when it suddenly bent at an obtuse angle, giving off at this part two small processes. The distance of the *prostate* from the bladder was 1¼ inch.

" The morbid appearances consisted in extensive adhesions of the abdominal *viscera*, indicative of great inflammation. The lobes of the liver adhered to each other, to the *parietes* of the *abdomen* and to the stomach. At the distance of 10 inches from the *anus* there was an extensive *intus-susceptio*, a portion of intestine above that part (measuring, when withdrawn, 8 inches,) being received into the part below, to which it slightly adhered. The strangulated portion was puckered up so as to take up a space of only 3¼ inches. The stomach exhibited dull red patches of inflammation, and was full of indigested food."

December 24, 1833.

William Yarrell, Esq., in the Chair.

Extracts were read from a letter, addressed to the Secretary by the Rev. R. T. Lowe, Corr. Memb. Z.S., and dated Madera, November 15, 1833. They related to a collection of *Fishes* made in that island by the writer, and accompanied about thirty species presented by him to the Society, in addition to those formerly transmitted by him, and exhibited at the Meeting of the Committee of Science and Correspondence on August 14, 1832. Those now sent were severally exhibited. They include the following species regarded by Mr. Lowe as hitherto undescribed, and for which he proposes the subjoined names and characters.

SERRANUS MARGINATUS. *Serr. nigrescens, luteo maculatus; pinnis dorsali, anali, caudalique nigris, albo marginatis; pinnâ dorsali filamentoso.*

D. 11 + 17. P. 18. V. 1 + 5. A. 3 + 9. C. 18.

This fish is very nearly related to *Serr. Gigas*, Cuv. & Val.; but appears to be distinguished by the greater number of the soft rays of its dorsal and anal fins, as well as by the white margin of these and the caudal. Its general tone of colouring is somewhat like that of a *Tench, Tinca vulgaris*, Cuv.; and it attains the length of 2 feet, and the weight of 8 pounds.

BERYX SPLENDENS. *Ber. ruber; pinnis ventralibus radiis duodecim mollibus.*

D. 4 + 14 v. 15. P. 1 + 17. V. 1 + 12. A. 4 + 30. C. ferè 30. M. B. 9.

This new species of *Beryx*,—a genus remarkable for the excess in number of the soft rays of the ventral fins beyond that which is normal in *Acanthopterygian Fishes*, viz. five,—has their number greater than any other except *Ber. Delphini*, recently described by M. Valenciennes from an individual obtained from the Indian Ocean. From *Ber. decadactylus*, Cuv. & Val., it differs by the greater number of these rays, by a greater number also of the rays of the branchiostegous membrane, and by its less compact form. Its height is equal to the length of its head, and measures three times and a half in its total length: its pectoral and dorsal fins, of equal length, are one fifth of the entire length of the fish; and the ventral measures one sixth. The dorsal and anal fins are proportionally higher than in that species; and the latter begins under the end of the former. The caudal fin is deeply forked. The number of *vertebræ*, exclusive of that which supports the rays of the caudal fin, is twenty-three.

Fam. CHÆTODONTIDÆ.

Genus LEIRUS.

Corpus ellipticum, compressum; squamis deciduis parvis.

Caput parvum, nudum, declive.

Os parvum: maxillâ superiore obtusissimâ; inferiore breviore, truncatâ.

Dentes minuti, simplices, in utrâque maxillâ 1-seriati: palatini nulli.

Opercula marginibus serratis.

Pinnæ dorsalis analisque posticè latiores, squamosæ.

Membrana branchiostega 7-radiata.

OBS. Genus *Bramæ*, Bloch, maximè affine. Differt præcipuè dentibus palatinis nullis: etiam pinnâ caudali haud profundè bilobâ.

LEIRUS BENNETTII.

TETRAGONURUS? SIMPLEX. *Tet. caudâ utrinque simplici.*

D. 15, 20 (ferè). P. ferè 10. V. 6. A. ferè 20. C. ferè 20. M.B. 7.

If this be a true *Tetragonurus*, Risso, (and there is no reason to doubt it except the absence of the *carinæ* on each side of the tail which give to that part in the type of the genus a square form,) it furnishes strong evidence of the affinity of that group to the *Scombridæ*. The spurious finlets behind its second dorsal and its anal fins denote a closer approach to the *Mackerels* than could be inferred from *Tet. Cuvieri*, Risso.

CRENILABRUS TRUTTA. *Cren. virescens, variegata et maculata, squamis medio fuscis; fasciis verticalibus fusco-nigrescentibus; caudâ utrinque basi ocellatâ; pinnâ anali 5-spinosâ.*

D. 17 + 8. P. 15. V. 1 + 5. A. 5 + 8. C. 15.

By the smaller number of the spinous rays of its dorsal fin, by its colouring, and by other characters, this fish differs both from *Cren. exoletus* (*Labrus exoletus*, Linn.,) and from the one described under the same name by M. Risso—two evidently distinct species,—to which may now be added a third, having equally with them five spinous rays in the anal fin.

RHOMBUS MADERENSIS. *Rhomb. corpore ovali, suprà scabriusculo, etuberculato, olivaceo-fusco, nigrescente vel ferrugineo; annulis punctorum albidorum, maculas ocellosve pallidos formantibus, sparsim picto; infrà albo, immaculato; pinnæ dorsalis radiis indivisis, inclusis; dentibus minutis, 1-seriatis.*

D. 91. A. 69. P. sup. 10. inf. 9. V. sup. 6. inf. 5. C. 15.

A rather small but elegantly marked species, the spots on the coloured side resembling little orreries or planetaria. Its nearest relation seems to that which Risso has described under the name of *Rhomb. mancus*, though it has not the lengthened pectoral fin on the upper side of that species. It is not very uncommon in the bay of Funchal, and is the only one of its genus yet observed there.

It has all the characters of the second division of *Rhombus*, indicated by Cuvier in his 'Règne Animal.'

CENTRINA NIGRA. *Cent. corpore toto glabro, nigro; pinnarum apicibus hyalescentibus.*

It is said that this fish does not grow larger than the individual sent, (10 inches in length). It is intermediate in characters between *Centrina*, Cuv., and *Acanthias*, Ej.; having the teeth of the former genus, and the form of body of the latter, as well as the backward position of the second dorsal fin. It is entirely black, even on its under surface.

INDEX.

The names of New Species and of Species newly characterized are printed in Roman Characters: those of Species previously known, but respecting which novel information is given, in *Italics*: those of Species respecting which Anatomical Observations are made, in CAPITALS.

Page.

- Alepisaurus, n. g. *Lowe* 104
  - ferox, *Lowe* 104
- *Alligator Mississippensis* 82
- *Anas galericulata*, Linn. 10
- ANAS MAGELLANICA, Auct. 3
- Anops, n. g. *Bell* 99
  - Kingii, *Bell* 99
- Anthelephila, *Hope* 63
- Anthicus cyaneus, *Hope* 63
- Anthropoïdes pavoninus, *Vieill.* 118
  - Regulorum 118
- Antilope Addra, *Benn.* 2
  - *Bennettii*, Sykes 114
  - *bubalina*, Hodgs. 105
  - *Cervicapra*, Pall. 12
  - ellipsiprymna, *Ogilb.* 47
  - *Goral*, Hardw. 105
  - *Hodgsonii*, Abel 110
  - *Leucoryx*, Pall. 77, 97
  - Mhorr, *Benn.* 2
  - Nanguer, *Benn.* 2
  - *personata*, Woods 45
  - *pygarga*, Pall. 45
  - *scripta*, Pall. 3
  - *Thar*, Hodgs. 105
- Aphrophora Goudoti, *Benn.* 12
- Aploa, n. g. *Hope* 61
  - picta, *Hope* 61
- Apogon vittiger, *Benn.* 32
- *Aptenodytes* 33
  - *Patachonica*, Gmel. 33, 65
- Apteryx australis, *Shaw* 24, 80
- *Aquila Choka*, Smith 45
  - *Verreauxii*, Less. 45
  - *vulturina*, Daud. 45
- Arca auriculata, *Sow.* 20
  - biangulata, *Sow.* 21
  - brevifrons, *Sow.* 22

Page.

  - cardiiformis, *Sow.* 22
  - concinna, *Sow.* 20
  - emarginata, *Sow.* 20
  - formosa, *Sow.* 20
  - labiata, *Sow.* 21
  - labiosa, *Sow.* 21
  - multicostata, *Sow.* 21
  - Nux, *Sow.* 19
  - obesa, *Sow.* 21
  - quadrilatera, *Sow.* 22
  - reversa, *Sow.* 20
  - tuberculosa, *Sow.* 19
- *Balanus Cranchii*, Leach 115
- Bernicla Sandvicensis, *Vig.* 65
- BEROË PILEUS, Lam. 8
- Beryx splendens, *Lowe* 142
- Brachyphylla, n. g. *Gray* 122
  - cavernarum, *Gray* 123
- BRADYPUS TRIDACTYLUS, Linn. 99
- BUCEROS CAVATUS, Lath. 102
- Bulinus Adamsonii, *Gray* 123
  - albus, *Sow.* 73
  - bilineatus, *Sow.* 37
  - calvus, *Sow.* 72
  - Chilensis, *Sow.* 36
  - chrysalidiformis, *Sow.* 37
  - conspersus, *Sow.* 73
  - corneus, *Sow.* 37
  - decoloratus, *Sow.* 73
  - discrepans, *Sow.* 72
  - erythrostoma, *Sow.* 37
  - Jacobi, *Sow.* 74
  - Laurentii, *Sow.* 37
  - Luzonicus, *Sow.* 73
  - pallidior, *Sow.* 72
  - pruinosus, *Sow.* 36
  - punctulifer, *Sow.* 36
  - rugiferus, *Sow.* 36

Page.
Bulinus scabiosus, *Sow.* 74
striatulus, *Sow.* 73
unicolor, *Sow.* 73
unifasciatus, *Sow.* 37
ustulatus, *Sow.* 72
Byssoarca alternata, *Sow.* 17
decussata, *Sow.* 18
divaricata, *Sow.* 18
illota, *Sow.* 18
Lithodomus, *Sow.* 16
lurida, *Sow.* 19
maculata, *Sow.* 17
mutabilis, *Sow.* 17
Pacifica, *Sow.* 17
parva, *Sow.* 19
pusilla, *Sow.* 18
solida, *Sow.* 18
truncata, *Sow.* 19
velata, *Sow.* 18
CALLITHRIX SCIUREUS, Geoffr. 88
Callomys aureus, Isid. Geoffr. 59
Calosoma orientale, *Hope* 61
Canis Dukhunensis, Sykes 133
familiaris Ægyptius, Linn. 113
latrans, Say 97
primævus, *Hodgs.* 111, 113, 119, 133.
Capra Ægagrus, *var.* 105
Capros Aper, Lacép. 114
Carbo Cormoranus, Meyer 10
Cardium aspersum, *Sow.* 85
consors, *Sow.* 85
Cumingii, *Brod.* 82
elatum, *Sow.* 84
laticostatum, *Sow.* 85
maculosum, *Sow.* 85
multipunctatum, *Sow.* 84
multistriatum, *Sow.* 85
obovale, *Sow.* 84
Orbita, *Sow.* 83
Panamense, *Sow.* 85
planicostatum, *Sow.* 83
procerum, *Sow.* 83
senticosum, *Sow.* 84
unimaculatum, *Sow.* 84
Centenes, n. sp. ? 81
Centrina nigra, *Lowe* 144
Cercopithecus Pogonias, *Benn.* 67
tephrops, *Benn.* 109
Cervus Alces, Linn. 46
Cetonia cretosa, *Hope* 63
Chætodon chrysurus, *Desj.* 117
festivus, *Desj.* 117
Chamæleo verrucosus, Cuv. 133
Charadrius pluvialis, Linn. 56
Chinchillidæ, *Benn.* 58

Page.
Chinchilla 59
aurea? Benn. 59
lanigera, Benn. 59
Chlænius Sykesii, *Hope* 61
Circaëtus pectoralis, Smith 45
thoracinus, Cuv. 45
Clupea Mauritiana, *Benn.* 32
Columba Princeps, *Vig.* 78
Conus Archon, *Brod.* 54
concinnus, *Brod.* 53
Geographus, var., *Brod.* 55
Gladiator, *Brod.* 55
luteus, *Brod.* 53
monilifer, *Sow.* 54
musivum, *Brod.* 54
nanus, *Brod.* 53
nivifer, *Brod.* 53
Nux, *Brod.* 54
Orion, *Brod.* 55
Princeps, var., *Brod.* 55
purpurascens, *Brod.* 54
recurvus, *Brod.* 54
tiaratus, *Brod.* 52
tornatus, *Brod.* 53
Coptorrhina, n. g. *Hope* 62
Africana, *Hope* 62
Klugii, *Hope* 62
Coracias garrula, Linn. 88
Corbula bicarinata, *Sow.* 35
biradiata, *Sow.* 35
nasuta, *Sow.* 35
nuciformis, *Sow.* 35
ovulata, *Sow.* 35
radiata, *Sow.* 36
tenuis, *Sow.* 36
CORYTHAIX PORPHYREOLOPHA, Vig. 106
Crenilabrus Trutta, *Lowe* 143
Crocodilus vulgaris, Cuv. 81
Cryptoprocta, n. g. *Benn.* 46
ferox, *Benn.* 46
Cumingia, n. g. *Sow.* 34
coarctata, *Sow.* 34
lamellosa, *Sow.* 34
mutica, *Sow.* 34
trigonularis, *Sow.* 35
Cynictis, n. g. *Ogilb.* 48
Steedmanni, *Ogilb.* 49
Dasyurus ursinus, Geoffr. 118
DELPHINUS GLOBICEPS, Cuv. 65
Dendrocitta, n. g. *Gould.* 57
leucogastra, *Gould* 57
Dendronessa sponsa, Swains. 10
Didelphis breviceps, *Benn.* 40
Californica, *Benn.* 40
Didus ineptus, Linn. 31
DIOMEDEA EXULANS, Linn. 78

Page.
Dissosternum, *Hope* 64
Epibulus Insidiator, Cuv. 117
Falco biarmicus, Temm. 45
chicqueroides, Smith 45
ecaudatus, Shaw 45
Gymnogenys, Temm. 45
rapax, Temm. 45
FELIS CONCOLOR, Linn. 120
JUBATA, Schreb. 108
Leo, var. Goojrattensis, *Smee* 140
Leopardus, Linn. 49
Tigris, Linn. 105
viverrinus, *Benn.* 68
GALICTIS VITTATA, Bell 140
Glaucus, Forst. 51
Gobius semicinctus, *Benn.* 32
Grammistes compressus, *Lién.* 117
Grus Regulorum, Licht. 118
GULO VITTATUS, Desm. 140
Gymnogenys, Less. 45
Gypogeranus Serpentarius, Illig. 118
Helotarsus, Smith 45
Hyæna villosa, Smith 45
vulgaris, Cuv. 45
Hystrix cristata, Linn. 106
Ianthina vulgaris, Lam. 14
Ibis religiosa, Cuv. 133
Isacantha, n. g. *Hope* 63
rhinotioides, *Hope* 63
Lagostomus 59
trichodactylus, Brookes 59
Lagotis, n. g. *Benn.* 58
Cuvieri, *Benn.* 59
Lamia Crux nigra, *Hope* 64
Roylii, *Hope* 64
Languria Nepalensis, *Hope* 61
Larus argentatus, Brunn. 10, 56
capistratus, Temm. 33
fuscus, Brunn. 10
ridibundus, Linn. 10
Leirus, n. g. *Lowe* 143
Bennettii, *Lowe* 143
Lemur niger, Geoffr. 68
rufifrons, *Benn.* 106
Lepus Hibernicus, *Yarr.* 88
nigricaudatus, *Benn.* 41
Lerista, n. g. *Bell* 99
lineata, *Bell* 99
Leuciscus Phoxinus, Cuv. 88
Libellula bimaculata, Desj. 118
limbata, Desj. 118
semihyalina, Desj. 118
Limosa melanura, Leisl. 56
Lingula Audebardii, *Brod.* 125
AUDEBARDII, Brod. 127
Semen, *Brod.* 125

Page.
Littorina petræa 116
rudis 116
Loligo sagittata, Lam. 90
LOLIGOPSIS GUTTATA, Grant 90
Lophophorus Impeyanus 102
LORIS GRACILIS, Geoffr. 22
Lucanus æratus, *Hope* 63
Downesii, *Hope* 63
Lyprops, n. g. *Hope* 63
chrysophthalmus, *Hope* 63
Macronota tetraspilota, *Hope* 62
Macropus major, Shaw 82, 128
Malurus pectoralis, *Gould* 106
Mephitus nasuta, *Benn.* 39
Meles Labradoria, Sab.? 42
Midas rufimanus, Geoffr. 106
Muræna molendinaris, *Benn.* 32
MUSTELA CANADENSIS, Schreb. 97
Nyctinomus acetabulosus, Geoffr. 133
Oiceoptoma tetraspilotum, *Hope.* 61
Ophisurus crocodilinus, *Benn.* 32
Opilus auripennis, *Hope* 62
Orbicula Cumingii, *Brod.* 124
lamellosa, *Brod.* 124
LAMELLOSA, Brod. 127
ORNITHORHYNCHUS PARADOXUS, Blum. 15, 28, 82, 91, 95
Ortyx Montezumæ, Vig. 65
Ovis Ammon, Erxl. 105
Musmon, Schreb. 105
Pelecanus Piscator, Linn. 32
PENELOPE GUAN, Temm. 8
Pentalasmis striata, Leach 120
Perdix Lerwa, *Hodgs.* 107
Phænomeris, n. g. *Hope* 62
magnifica, *Hope* 62
Phasianus lineatus, *Lath.* 13
Pholidotus irroratus, *Hope* 63
Pica Sinensis, Gray 57
vagabunda, Wagl. 57
Picus flavinucha, *Gould* 120
Platycercus Novæ Hollandiæ, Vig. 106
Pleurotoma adusta, *Sow.* 137
albicostata, *Sow.* 135
aterrima, *Sow.* 137
bicanalifera, *Sow.* 136
bicolor, *Sow.* 135
cincta, *Sow.* 136
clavata, *Sow.* 135
Clavulus, *Sow.* 134
collaris, *Sow.* 139
cornuta, *Sow.* 136
corrugata, *Sow.* 137
discors, *Sow.* 137
duplicata, *Sow.* 138
excentrica, *Sow.* 138

Page.
Pleurotoma formicaria, *Sow.* 139
granulosa, *Sow.* 139
hexagona, *Sow.* 139
incrassata, *Sow.* 138
interrupta, *Sow.* 138
maculosa, *Sow.* 135
Maura, *Sow.* 134
modesta, *Sow.* 136
nigerrima, *Sow.* 137
nitida, *Sow.* 139
olivacea, *Sow.* 136
Oxytropis, *Sow.* 135
pallida, *Sow.* 137
rosea, *Sow.* 134
rudis, *Sow.* 134
rugifera, *Sow.* 136
rustica, *Sow.* 138
splendidula, *Sow.* 135
Turricula, *Sow.* 137
unicolor, *Sow.* 138
unimaculata, *Sow.* 134
variculosa, *Sow.* 139
Pollicipes polymerus, *Sow.* 74
ruber, *Sow.* 74
Polyboroides, Smith 45
Prionus Cumingii, *Hope* 64
Hayesii, *Hope* 64
Pertii, *Hope* 64
Pteroglossus castanotis, *Gould* 119
hypoglaucus, *Gould* 70
ulocomus, *Gould* 38
Purpura xanthostoma, *Brod.* 8
Pyrosoma sp. 79
Rana esculenta, Linn. 88
Ranina cristata, Desj. 118
Rhamphastos culminatus, *Gould* 70
Swainsonii, *Gould* 69
Rhombus Maderensis, *Lowe* 143
Rissoa parva 116
Sarcorhamphus Gryphus, Dum. 78
Sciurus nigrescens, *Benn.* 41
Scolecobrotus, n. g. *Hope* 64
Westwoodii, *Hope* 64
Semnopithecus cucullatus, Isid. Geoffr. 68
Entellus 74
fascicularis 74
Nestor, *Benn.* 67
Sepia officinalis, Linn. 86
Sepiola stenodactyla, *Grant* 42
Serranus marginatus, *Lowe* 142
Simia Faunus, Linn. 109

Page.
Spermophilus macrourus, *Benn.* 41
spilosoma, *Benn.* 40
Spondylus aculeatus, *Brod.* 5
dubius, *Brod.* 4
leucacantha, *Brod.* 5
Princeps, *Brod.* 4
Sterna arctica, Temm. 33
Sula candida, Briss. 32
Sus Scrofa monstr. 16
Teratophius, Less. 45
Terebratula Chilensis, *Brod.* 124
Chilensis, Brod. 126
psittacea, Brug. 126
Uva, *Brod.* 124
Testudo Indica, Linn. 43
Testudo Indica, Linn. 81
Tetragonurus? simplex, *Lowe* 143
Tetrodon stellatus, Donov. nec Lacép. 115
Tringa pugnax, Linn. 10
Triton Ceylonensis, *Sow.* 71
clathratus, *Sow.* 71
constrictus, *Brod.* 5
convolutus, *Brod.* 7
decollatus, *Sow.* 72
distortus, *Sow.* 71
gibbosus, *Brod.* 7
lignarius, *Brod.* 5
lineatus, *Brod.* 6
lineatus, *Sow.* 72
Mediterraneus, *Sow.* 71
nitidulus, *Sow.* 71
reticulatus, *Sow.* 71
rudis, *Brod.* 6
scalariformis, *Brod.* 7
tigrinus, *Brod.* 5
Trogon pavoninus, Spix 107
Turbinella armata, *Brod.* 7
Cæstus, *Brod.* 8
tuberculata, *Brod.* 7
Turdus polyglottus, Linn. 114
Uracantha, n. g. *Hope* 64
triangularis, *Hope* 64
Uromastix acanthinurus, Bell 16
Ursus ornatus, F. Cuv. 114
Velella limbosa, Lam. 14
Vultur auricularis, Daud. 45
fulvus, Linn. 45
Kolbii, Daud. 81
Zanclus cornutus, Cuv. 117
Zeus Aper, Linn. 114

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